

Reference Guide / Collaboration Functions

Table of Contents

Prerequisites	v
1. Applications	1
1.1. Portlets	1
1.1.1. Calendar portlet	1
1.1.2. Chatbar portlet	2
1.1.3. Chat Portlet	4
1.1.4. Contact Portlet	4
1.1.5. Mail Portlet	5
1.1.6. RSSreader Portlet	5
1.2. Gadgets	5
1.2.1. Eventslist	6
1.2.2. Taskslis	6
1.2.3. Messageslist	7
2. Configurations	9
2.1. Components	9
2.1.1. CalendarService	10
2.1.2. HistoryImpl	10
2.1.3. XMPPMessenger	11
2.1.4. DefaultPresenceStatus	11
2.1.5. ContactService	12
2.2. External Component Plugins	12
2.2.1. Calendar Configuration	14
2.2.2. Chat Configuration	22
2.2.3. Contact Configuration	25
2.2.4. Content Configuration	26
2.2.5. Mail Configuration	27
2.2.6. Social Integration Configuration	30
2.3. Data Injectors	33
2.3.1. ContactDataInjector	34
2.3.2. CalendarDataInjector	34
2.3.3. MailDataInjector	36
2.4. eXo Chatserver Configuration	38
2.4.1. Openfire Configuration	38
2.4.2. System Configuration	40
2.4.3. AS configuration	41
3. Developer reference	43
3.1. Extension points	43
3.1.1. ContentDAO	43
3.1.2. ContactLifeCycle	44
3.1.3. Transport	44
3.1.4. EventLifeCycle	45
3.2. Public REST APIs	45
3.2.1. Calendar application	45
3.2.2. Mail application	47
3.2.3. Chat application	48
3.3. JCR Structure	55
3.3.1. Calendar JCR Structure	55
3.3.2. Chat JCR Structure	64
3.3.3. Address Book JCR Structure	66
3.3.4. Mail JCR Structure	69

3.3.5. RSS JCR Structure 75

Prerequisites

You can refer to the following links to understand more about the Collaboration Reference Guide:

- [GateIn Reference Guide](#)
- [OpenSocial gadget](#)
- [WebService](#)
- [Chatserver](#)
- [Vcard](#)
- [iCalendar and its Internet standard](#)

Applications

This chapter provides you with a comprehensive view about applications in Collaboration, including:

- **Portlets**

Details of all portlets used in Collaboration, including: Calendar, Chatbar, Chat, Contact, Mail and RSS Reader.

- **Gadgets**

Details of all gadgets used in Collaboration, including: Eventslist, Tasklist, and Messageslist.

These applications are packaged as Web application archives (WARs).

Also, you can specify the package of each portlet and gadget and its available preferences that allow you to extend the configuration choices for standard preferences.

1.1. Portlets

- **Calendar portlet**

Information about the Calendar application, and its details (features, package and portlet.xml).

- **Chatbar portlet**

Information about the Chatbar application of Collaboration, and its details (package, portlet preferences and portlet.xml).

- **Chat Portlet**

Information about the Chat application of Collaboration that allows users to enter chat rooms and communicate with online others at real time, its package and portlet.xml.

- **Contact Portlet**

Information about the Contact application of Collaboration, its package and portlet.xml.

- **Mail Portlet**

Information about the Mail application of Collaboration that offers a lot of features to users, such as sending, receiving or viewing their mails through Internet without actually downloading them to their computer, its package and portlet.xml.

- **RSSreader Portlet**

Information about the RSSreader application of Collaboration that allows you to quickly get a view of their favorite feeds around the web, its package and portlet.xml

This section provides all information, such as description, package name, preferences, and portlet.xml of portlets included in Collaboration.

See also

- **Gadgets**

1.1.1. Calendar portlet

The Calendar portlet shows the Calendar application of Collaboration with a lot of features provided to users.

The Calendar application includes the following features:

- Create multiple personal calendars, manage calendars easily with calendar groups.

- Create events or tasks using the **Quick Add** dialog easily.
- Create events or tasks in details.
- Create all-day events.
- View other attendee's availability schedules.
- Create recurring events.
- Get reminders.
- View calendars by various views: day, week, month and year.
- View events day-by-day by navigating the mini-calendar quickly.
- Share calendars with others.
- Import/Export calendars.
- Publish your calendars with RSS, CalDAV.
- Search for events and/or tasks in calendars.
- Print your agenda.

Package

The Calendar portlet is packaged in the *calendar.war* file.

Portlet.xml

To see the portlet in the project, follow this path: `/eXoApplication/calendar/webapp/src/main/webapp/WEB-INF/portlet.xml`.

1.1.2. Chatbar portlet



Note

The Chatbar portlet and its services are deprecated. It remains fully supported for eXo customers, however it will not receive any enhancement and will be removed from the product scope in the future.

The Chatbar portlet shows the Chatbar application of Collaboration that can be positioned in the portal or page layout as any other, but behaves as a floating box. The bar remains floating at its location even when the browser window is scrolled or resized. Its height is fixed, but can be expanded horizontally to any size available in its container. This allows the portlet to be placed in two layout cases:

- Large width area (typically header or footer).
- Narrow column.

The Chatbar application implements all functions of the Chat application, allowing you to send and receive messages anywhere after you are logged in successfully. The Chatbar is a typical toolbar with buttons to open menus. It gives access to main features of Chat:

- Status change and presence indicator.
- Contacts.
- Rooms.
- Minimized conversation window.

Package

The Chatbar portlet is packaged in the *Chatbar.war* file.

Portlet preferences

The Chatbar Portlet consists of some preferences as in the following sample code:

```
<portlet-preferences>
<preference>
  <name>showMailLink</name>
  <value>true</value> <!--true/false -->
  <read-only>false</read-only>
</preference>
<preference>
  <name>showCalendarLink</name>
  <value>true</value> <!--true/false -->
  <read-only>false</read-only>
</preference>
<preference>
  <name>showContactLink</name>
  <value>true</value> <!--true/false -->
  <read-only>false</read-only>
</preference>
<preference>
  <name>mailUrl</name>
  <value>portal/private/intranet/mail</value> <!--String page name -->
  <read-only>false</read-only>
</preference>
<preference>
  <name>calendarUrl</name>
  <value>portal/private/intranet/calendar</value> <!--String page name -->
  <read-only>false</read-only>
</preference>
<preference>
  <name>contactUrl</name>
  <value>portal/private/intranet/contact</value> <!--String page name -->
  <read-only>false</read-only>
</preference>
<preference>
  <name>info</name>
  <value>info</value> <!--this is only the key to get the resource bundle the full key : UIConfigForm.label.info -->
  <read-only>true</read-only>
</preference>
</portlet-preferences>
```

In which:

Preference Name	Possible Values	Default Values	Description
showMailLink	true / false	true	The value as "true" or "false" means that users are allowed to see the application icon or not respectively.
showCalendarLink	true / false	true	The value as "true" or "false" means that users are allowed to see the application icon or not respectively.
showContactLink	true / false	true	The value as "true" or "false" means that users are allowed to see the application icon or not respectively.
mailUrl	string	Portal/private/ intranet/mail	The URL to the Mail application page in the portal

Preference Name	Possible Values	Default Values	Description
calendarUrl	string	Portal/private/ intranet/calendar	without combining with the %domain name. The port% chatbar will resolve it from server. The URL to the Calendar application page in the portal without combining with the %domain name. The port% chatbar will resolve it from server.
contactUrl	string	Portal/private/ intranet/contact	The URL to the Address Book application page in the portal without combining with the %domain name. The port% chatbar will resolve it from server.
info	Info	Info	This is only the key to get the resource bundle of the full key: UIConfigForm.label.info.

Portlet.xml

See the portlet in the project following this path: `/eXoApplication/chatbar/webapp/src/main/webapp/WEB-INF/portlet.xml`.

1.1.3. Chat Portlet



Note

The Chat portlet and its services are deprecated. It remains fully supported for eXo customers, however it will not receive any enhancement and will be removed from the product scope in the future.

The Chat Portlet shows the Chat application of Collaboration that allows users to enter chat rooms and communicate with online others at real time.

Package

The Chat portlet is packaged in the *Chat.war* file.

Portlet.xml

See the portlet in the project following this path: `/eXoApplication/chat/webapp/src/main/webapp/WEB-INF/portlet.xml`

1.1.4. Contact Portlet

Contact Portlet shows the Contact application of Collaboration that allows users to personalize their contact view from different view types, such as List view and VCards view.

Package

Contact Portlet is packaged in the *Contact.war* file.

Portlet.xml

See the portlet in the project following this path: `/eXoApplication/contact/webapp/src/main/webapp/WEB-INF/portlet.xml`.

1.1.5. Mail Portlet



Note

The Mail portlet and its services are deprecated. It remains fully supported for eXo customers, however it will not receive any enhancement and will be removed from the product scope in the future.

Mail Portlet shows the Mail application of Collaboration that offers a lot of features to users such as sending, receiving or viewing their mails through Internet without actually downloading them to their computer. Users not only take advantages of eXo Mail by keeping and receiving all important messages, files and pictures forever but also by looking for and viewing their needed messages easily whenever they want. Additionally, the Mail application is smoothly integrated with other Collaboration modules, such as Address Book and Calendar.

Package

The Mail Portlet is packaged in the *Mail.war* file.

Portlet.xml

See the portlet in the project following this path: */eXoApplication/mail/webapp/src/main/webapp/WEB-INF/portlet.xml*.

1.1.6. RSSreader Portlet



Warning

The RSSreader portlet and its services are deprecated. It remains fully supported for eXo customers, however it will not receive any enhancement and will be removed from the product scope in the future.

Collaboration uses the RSS Reader Portlet that facilitates users to quickly get a view of their favorite feeds around the web. They will get the latest news, the last updated posts from their favorite blogs, latest emails, and more.

Package

The RSSreader Portlet is packaged in the *Rssreader.war* file.

Portlet.xml

See the portlet in the project following this path: */eXoApplication/content/webapp/src/main/webapp/WEB-INF/portlet.xml*.

1.2. Gadgets

- [Eventslist](#)

Information about the Eventslist gadget that lists the upcoming events with the user-configurable number of items, its preferences and links to used REST services.

- [Tasklist](#)

Information about the Tasklist gadget that lists the upcoming tasks with the user-configurable number of items, its preferences and links to used REST services.

- [Messageslist](#)

Information about the Messageslist gadget that lists the unread messages with the user-configurable number of items, its preferences and links to used REST services.

Collaboration consists of 3 gadgets: Eventslist, Taskslis and Messageslist. They are packaged in the `csResources.war` file.

See also

- [Portlet](#)

1.2.1. Eventslist

Eventslist lists the maximum number of upcoming events, that is configurable by users. For example, they can set the preference list to 5 or 10 events.

Preferences

See preferences of this gadget in the following sample code:

```
<UserPref datatype="string" display_name="__MSG_baseurl__" name="url" required="true" value="/calendar"/>
<UserPref datatype="string" display_name="__MSG_subscribeurl__" name="subscribeurl" required="true" value="/portal/rest/private/cs/calendar/upcoming"/>
<UserPref datatype="string" default_value="10" display_name="__MSG_limit__" name="limit"/>
<UserPref datatype="enum" default_value="AM/PM" display_name="__MSG_format__" name="timeformat"/>
```

Details:

Preferences	Description
<code>url</code>	Link to the Calendar portlet.
<code>Subscribeurl</code>	Link to the upcoming events.
<code>limit</code>	The maximum number of upcoming events.
<code>timeformat</code>	The time format for upcoming events.

For more details on the preferences of gadgets, see [here](#).

Links to used REST services

It uses the `upcomingEvent` service in the following package:
`org.exoplatform.webservice.cs.calendar.CalendarWebservice.java`.

1.2.2. Taskslis

Taskslis lists the maximum number of upcoming tasks that is configurable by users. For example, they can set the preference list to 5 or 10 tasks.

Preferences

See the preferences of this gadget in the following sample code:

```
<UserPref datatype="hidden" default_value="/calendar:/portal/rest/private/cs/calendar/upcoming:10:AM/PM:Default" name="setting"/>
```

Accordingly, `setting` collects all the configuration of upcoming tasks and add some more functions to help developers change the configuration of the default skin.

Links to used REST services

It uses `upcomingEvent` service in the following package:
`org.exoplatform.webservice.cs.calendar.CalendarWebservice.java`.

1.2.3. Messageslist

It lists the maximum number of unread messages, that is configurable by users.

Preferences

See the preferences of this gadget in the following sample code:

```
<UserPref datatype="hidden" display_name="__MSG_baseurl__" name="url" required="true" value="/mail"/>
<UserPref datatype="hidden" display_name="__MSG_subscribeurl__" name="subscribeurl" required="true" value="/portal/rest/private/cs/mail/unreadMail"/>
<UserPref datatype="hidden" default_value="5" display_name="__MSG_limit__" name="limit"/>
<UserPref datatype="hidden" default_value="" display_name="__MSG_account__" name="account"/>
<UserPref datatype="hidden" default_value="" display_name="__MSG_folder__" name="folder"/>
<UserPref datatype="hidden" default_value="" display_name="__MSG_tag__" name="tag"/>
```

Details:

Preferences	Description
Url	The URL of the Mail Application.
Subscribeurl	The link to upcoming messages.
Limit	The number of displayed unread messages that is set by users.
Account	The mail account in the Mail application.
Folder	The folder which consists of unread messages.
Tag	The tags in all unread messages.

Links to used REST services

It uses the unreadMail service in the following package: *org.exoplatform.webservice.cs.mail.MailWebservice.java*.

Configurations

This chapter describes configurations used in Collaboration. It consists of the following main sections:

- **Components**

Description of main components that take init-param in the applications of Collaboration, including: CalendarService, HistoryImpl, XMPPMessenger, DefaultPresenceStatus, and ContactService.

- **External Component Plugins**

Description of configurations of external component plugins used to implement Calendar, Chat, Contact, Content and Mail applications.

- **Data Injectors**

Description of data injectors used to create data for performance test in Collaboration and instruction on how to use them.

- **eXo Chatserver Configuration**

Description of Openfire, system and AS configurations.

2.1. Components

Components	Applications	Description
CalendarService	Calendar	It is a service that manages calendars in the Calendar application of Collaboration.
HistoryImpl	Chat	It is a service that saves the chat history of users.
XMPPMessenger		It is a service that processes messages of chat users, basing on the XMPP Protocol.
DefaultPresenceStatus		It is a component that controls the presence status of chat users.
ContactServiceImpl	Contact	It is a service that supplies functions to manage contacts in the Address Book application of Collaboration.



Note

The above followings are some main components that take init-param in the applications of Collaboration.

See also

- [External Component Plugins](#)
- [Data Injectors](#)

- eXo Chatserver Configuration

2.1.1. CalendarService

The configuration of the Calendar application is applied mainly in `/eXoApplication/calendar/service/src/main/resources/conf/portal/configuration.xml`.

Use the CalendarService to configure the Calendar. The following information will explain details of its configuration. When this configuration file is executed, the component named `org.exoplatform.calendar.service.impl.CalendarServiceImpl` will process actions of the Calendar application.

```
<component>
  <key>org.exoplatform.calendar.service.CalendarService</key>
  <type>org.exoplatform.calendar.service.impl.CalendarServiceImpl</type>
  <init-params>
    <properties-param>
      <name>eventNumber.info</name>
      <property name="eventNumber" value="100"/>
    </properties-param>
  </init-params>
</component>
```

Details:

Properties-Param	Property name	Description	Possible Value	Default Value
eventNumber	eventNumber	The number of events in a calendar.	interger	100

2.1.2. HistoryImpl

The configuration of historyImpl is found in the `/extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/chat/chat-service-configuration.xml`. When this configuration file is executed, the component named `org.exoplatform.services.xmpp.history.impl.jcr.HistoryImpl` initializes all the configured parameters.

```
<component>
  <type>org.exoplatform.services.xmpp.history.impl.jcr.HistoryImpl</type>
  <init-params>
    <value-param>
      <name>workspace</name>
      <value>collaboration</value>
    </value-param>
    <value-param>
      <name>repository</name>
      <value>repository</value>
    </value-param>
    <value-param>
      <name>path</name>
      <value>exo:applications/eXoChat/history</value>
    </value-param>
  </init-params>
</component>
```

Details:

Value-Param	Description	Possible Values	Default Value
workspace	The workspace name in JCR where history data is stored.	string	collaboration

Value-Param	Description	Possible Values	Default Value
repository	The repository name in JCR where history data is stored.	string	repository
path	The JCR path to the location where history data is stored.	string	exo:applications/ eXoChat/history.

2.1.3. XMPPMessenger

The configuration of the XMPPMessenger component is found in `/extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/chat/chat-service-configuration.xml`. It helps Collaboration connect the Openfire instance.

```
<component>
<type>org.exoplatform.services.xmpp.connection.impl.XMPPMessenger</type>
<init-params>
<properties-param>
<name>openfire-connection-conf</name>
<property name="host" value="127.0.0.1"/>
<property name="port" value="5222"/>
</properties-param>
<properties-param>
<name>send-file</name>
<property name="timeout" value="7200000"/>
</properties-param>
</init-params>
</component>
```

Details:

Properties-param	Property name	Description	Possible Values	Default Value
openfire-connection-conf	host	IP address or hostname for the openfire server.	integer	127.0.0.1
	port	Port to connect on the Openfire server. Should be the same that is set in the Openfire configuration "Client to Server".	integer	5222
send-file	timeout	The timeout before aborting attempt to establish a file transfer.	integer	7200000

2.1.4. DefaultPresenceStatus

The configuration of the DefaultPresenceStatus component is found in `/extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/chat/chat-service-configuration.xml`.

```
<component>
<type>org.exoplatform.services.presence.DefaultPresenceStatus</type>
<init-params>
<properties-param>
```

```
<name>presence-status</name>
<property name="mode" value="Free to chat"/>
</properties-param>
</init-params>
</component>
```

Details:

Properties-param	Property name	Description	Possible Values	Default Value
presence-status	mode	Show the present status of users.	string	Free to chat

2.1.5. ContactService

The configuration of the ContactService component is found in *eXoApplication/contact/service/src/main/resources/conf/portal/configuration.xml*.

When the server starts, the configuration file which contains the declaration of ContactService component is executed. A ContactService component is then created with params and plugins in the configuration file.

```
<component>
<key>org.exoplatform.contact.service.ContactService</key>
<type>org.exoplatform.contact.service.impl.ContactServiceImpl</type>
<init-params>
<values-param>
<name>UserCanSeeAllGroupAddressBooks</name>
<description>User can see all GroupAddressBooks or only GroupAddressBooks that the user has at least one membership</description>
<value>>false</value>
</values-param>
<values-param>
<name>NonPublicGroups</name>
<description>Groups that should not be displayed in broadcast list. Wildcards may be used in groups name</description>
</values-param>
</init-params>
</component>
```

Details:

Values-param	Description	Possible Values	Default Value
UserCanSeeAllGroupAddressBooks	Users can see all GroupAddressBooks or only GroupAddressBooks that the user has at least one membership.	true/false	false
NonPublicGroups	Groups that should not be displayed in the broadcast list. Wildcards may be used in groups name.	true/false	N/A

2.2. External Component Plugins

• Calendar Configuration

Description of the configuration of external component plugins used to implement the Calendar application, including: NewUserListener, NewGroupListener, NewMembershipListener, ReminderPeriodJob, PopupReminderPeriodJob and AddActionsPlugin.

- **Chat Configuration**

Description of the configuration of external component plugins used to implement the Chat application, including: HistoryPeriodJob, RequestFilterComponentPlugin and AuthenticationLoginListener and AuthenticationLogoutListener.

- **Contact Configuration**

Description of the configuration of external component plugins used to implement the Address Book application, including: NewUserListener, NewMembershipListener, and UpdateUserProfileListener.

- **Content Configuration**

Description of the configuration of external component plugins used to implement the Content application, including: RSSContentPluginDescriptionPlugin and DescriptionPlugin.

- **Mail Configuration**

Description of the configuration of external component plugins used to implement the Mail application, including: AuthenticationLogoutListener and MailSettingConfigPlugin.

- **Social Integration Configuration**

Description of the configuration of external component plugins used to integrate Social with Collaboration, including: CalendarDataInitialize, ContactDataInitialize, ContactSpaceActivityPublisher, CalendarSpaceActivityPublisher, and PortletPreferenceRequiredPlugin.

The following table describes the main functions of external component plugins:

Applications	Components	Description
Calendar	NewUserListener	Create default personal calendars.
	NewGroupListener	Create default group calendars.
	NewMembershipListener	Share calendars to members of a specific group.
	ReminderPeriodJob	Execute sending reminder emails to users.
	PopupReminderPeriodJob	Open a pop-up reminder on the browser of users.
	AddActionsPlugin	Enable the systems to automatically update the updated date of events/tasks in a calendar when contents of these events/tasks are changed.
Chat	HistoryPeriodJob	Save the chat history of users.
	RequestFilterComponentPlugin	Delete the session of a user when the browser is suddenly closed or the session is changed.
	AuthenticationLoginListener	Start the session and log in the chat server.
	AuthenticationLogoutListener	End the session and log out the chat server.
Contact	NewUserListener	Create personal contact data for users.
	NewMembershipListener	Create address book for a specific group.
	UpdateUserProfileListener	Update the personal profile of a user when it is changed on the portal.

Applications	Components	Description
Content	RSSContentPlugin	The formatter used to analyze the data from a RSS resource.
	DescriptionPlugin	Represent the data from a RSS resource.
Mail	AuthenticationLogoutListener	Stop checking mails of a user when he logs out.
Social Intergration	CalendarDataInitialize	Create a calendar for a group in a specific space.
	ContactDataInitialize	Create an address book for a group in a specific space.
	ContactSpaceActivityPublisher	Customize the activity status of a specific space when an event happens on an address book.
	CalendarSpaceActivityPublisher	Customize the activity status of a specific space when an event happens on a calendar.
	PortletPreferenceRequiredPlugin	Declare the application that will automatically create database.

See also

- [Components](#)
- [Data Injectors](#)
- [eXo Chatserver Configuration](#)

2.2.1. Calendar Configuration

This section describes the configuration of external component plugin used to implement the Calendar application.

2.2.1.1. NewUserListener

Each user can have a default personal calendar created. Use the NewUserListener to configure that. To use the plugin in the component configuration, you must use the target-component:

```
<target-component>org.exoplatform.services.organization.OrganizationService</target-component>
```

The configuration is applied mainly in *extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/calendar/calendar-service-configuration.xml*.

```
<component-plugin>
  <name>calendar.new.user.event.listener</name>
  <set-method>addListenerPlugin</set-method>
  <type>org.exoplatform.calendar.service.impl.NewUserListener</type>
  <description>description</description>
  <init-params>
    <value-param>
      <name>defaultEventCategories</name>
      <value>Meeting,Calls,Clients,Holiday,Anniversary</value>
    </value-param>
    <value-param>
```

```

    <name>defaultCalendarCategory</name>
    <value>My group</value><!-- Single value -->
  </value-param>
  <value-param>
    <name>defaultCalendar</name>
    <value>Default</value>
  </value-param>
  <!--Params for default calendar setting -->
  <value-param>
    <name>viewType</name>
    <value>1</value>
  </value-param>

  <value-param>
    <name>timeInterval</name>
    <value>15</value><!-- in minutes -->
  </value-param>

  <value-param>
    <name>weekStartOn</name>
    <value>2</value>
  </value-param>

  <value-param>
    <name>dateFormat</name>
    <value>MM/dd/yyyy</value>
  </value-param>

  <value-param>
    <name>timeFormat</name>
    <value>HH:mm</value> <!-- HH:mm/hh:mm a -->
  </value-param>

  <value-param>
    <name>localeId</name>
    <value>BEL</value>
  </value-param>

  <value-param>
    <name>timezoneld</name>
    <value>Europe/Brussels</value>
  </value-param>

  <value-param>
    <name>baseUrlForRss</name>
    <value/>
  </value-param>

  <value-param>
    <name>isShowWorkingTime</name>
    <value>>false</value><!-- boolean true/false -->
  </value-param>

  <value-param>
    <name>workingTimeBegin</name>
    <value>08:00</value><!-- -->
  </value-param>

  <value-param>
    <name>workingTimeEnd</name>
    <value>18:00</value><!-- -->
  </value-param>

  <values-param>
    <name>ignoredUsers</name>
    <description>Definition users to ignore create default calendar</description>
    <!-- <value>demo</value> <value>marry</value> -->
  </values-param>
</init-params>
</component-plugin>

```

Details:

- **Name:** `calendar.new.user.event.listener` - The unique key to avoid duplicate names. Users can change it.
- **Set-method:** `addListenerPlugin` - The function is executed at the target of the component to register `NewUserListener`.
- **Type:** `org.exoplatform.calendar.service.impl.NewUserListener` - The class is set up to execute the creation of database.
- **Description:** It is a plugin used to create default personal calendars.

See the details about the init-params of the component in the following table:

Value-params	Possible value	Default value	Description
defaultEventCategories	String (Comma separated list of category names)	Meeting, Calls, Clients, Holidays, Anniversaries	Default event categories for users.
defaultCalendarCategory	String	Default	Name of the calendar group.
viewType	0-6 (see below)	1	Default view after user logs in and goes to the Calendar portlet.
timeInterval	integer in minutes	15	The time unit interval when you drag and move the event (in Day and Week views only).
weekStartOn	1-7 (see below)	2	Day to use as the beginning of the week. It only affects the Week view.
dateFormat	valid Java Date format	MM/dd/yyyy	The display format for dates.
timeFormat	valid Java Date format	HH:mm	The display format for time.
localeId	valid locale ID	BEL	Id of the geographic locale.
timezonelds	valid TimeZone id	Europe	User time zone.
baseUrlForRss	none	none	The URL to publish the RSS content.
isShowWorkingTime	true/false	false	Indicate if the working time should be highlighted in the Day view.
workingTimeBegin	time in timeFormat	08:00	The start time in working time.
workingTimeEnd	time in timeFormat	18:00	The end time in working time.
ignoredUsers	user id, use multiple by each line	demo/marry	Definition users to ignore creating the default calendar.

The **viewType** parameter is encoded by a number as follow:

- 0 : Day view
- 1 : Week view
- 2 : Month view

- 3 : Year view
- 4 : List view
- 5 : Schedule view
- 6 : Working days view

The **weekStartOn** parameter is encoded as follow:

- 1 : Sunday
- 2 : Monday
- 3 : Tuesday
- 4 : Wednesday
- 5 : Thursday
- 6 : Friday
- 7 : Saturday

2.2.1.2. NewGroupListener

To use the plugin in the component configuration, you must use the target-component:

```
<target-component>org.exoplatform.services.organization.OrganizationService</target-component>
```

The configuration is applied mainly in *extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/calendar/calendar-service-configuration.xml*.

```
<component-plugin>
  <name>calendar.new.group.event.listener</name>
  <set-method>addListenerPlugin</set-method>
  <type>org.exoplatform.calendar.service.impl.NewGroupListener</type>
  <description>description</description>
  <init-params>
    <value-param>
      <name>defaultEditPermission</name>
      <value>*. *</value><!-- Multi value membership, use coma (,) to split values -->
    </value-param>
    <value-param>
      <name>defaultViewPermission</name>
      <value>*. *</value>
    </value-param>
    <value-param>
      <name>defaultLocale</name>
      <value>BEL</value>
    </value-param>
    <value-param>
      <name>defaultTimeZone</name>
      <value>Europe/Brussels</value>
    </value-param>
    <values-param>
      <name>ignoredGroups</name>
      <description>Definition group to ignore create default calendar</description>
      <!-- <value>/platform/guests</value> -->
      <value>/spaces/*</value> <!-- single value, use more <value> tags to add more group -->
    </values-param>
  </init-params>
</component-plugin>
```

Details:

- **Name:** `calendar.new.group.event.listener` - The unique key to avoid duplicate names. Users can change it.
- **Set-method:** `addListenerPlugin` - The function is executed at the target of the component to register `NewGroupListener`.
- **Type:** `org.exoplatform.calendar.service.impl.NewGroupListener` - The class which is set up to execute the creation of database.
- **Description** - It is the plugin used to create default group calendars.

See the details about the init-params of the component in the following table:

Value-params	Possible values	Default values	Description
defaultEditPermission	User id (Multi value membership, use coma (,) to split values)	. means that all members in that group can modify and add, remove a calendar, events/tasks of the calendar	The default permission assigned to membership in a specific group to edit calendars and events/tasks of the calendar.
defaultViewPermission	User id (Multi value membership, use coma (,) to split values)	. means that all members in that group can view this calendar and all the events/tasks of this calendar.	The default permission assigned to membership in a specific group to view a calendar and events /tasks of the calendar.
defaultLocale	Valid locale id	BEL (see more locale ids http://userpage.chemie.fu-berlin.de/diverse/doc/ISO_3166.html)	The default locale of the calendar.
defaultTimeZone	Valid timezone id	Europe/Brussels (see more for timeZone ids http://www.unicode.org/cldr/data/docs/design/formatting/zone_log.html#windows_ids)	The default time zone of the calendar.
ignoredGroups	Group id (use line to define multiple value)	/platform/guests	Definition group to ignore create the default calendar.

2.2.1.3. NewMembershipListener

To use the plugin in the component configuration, you must use the target-component:

```
<target-component>org.exoplatform.services.organization.OrganizationService</target-component>
```

The configuration is applied mainly in `extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/calendar/calendar-service-configuration.xml`.

```
<component-plugin>
  <name>calendar.new.membership.event.listener</name>
  <set-method>addListenerPlugin</set-method>
  <type>org.exoplatform.calendar.service.impl.NewMembershipListener</type>
  <description>description</description>
</component-plugin>
```

Details:

- **Name:** `calendar.new.membership.event.listener` - The unique key to avoid duplicate names. Users can change it.
- **Set-method:** `addListenerPlugin` - The function which is executed at the target of the component.
- **Type:** `org.exoplatform.calendar.service.impl.NewMembershipListener` - The class which is set up to execute the creation of database.
- **Description:** It is a plugin used to execute sending reminder emails to users.

2.2.1.4. ReminderPeriodJob

The Calendar application of Collaboration send event reminders by using the email reminder plugin configuration. You will probably need to adjust this configuration to meet your own needs. The feature is based on a periodic poll of the stored reminders.

You must use the following target component to use the plugin in this configuration:

```
<target-component>org.exoplatform.services.scheduler.JobSchedulerService</target-component>
```

The configuration is applied in `extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/cs-configuration.xml`.

```
<component-plugin>
  <name>RecordsJob</name>
  <set-method>addPeriodJob</set-method>
  <type>org.exoplatform.calendar.service.ReminderPeriodJob</type>
  <description>add e-mail reminder job to the JobSchedulerService</description>
  <init-params>
    <properties-param>
      <name>job.info</name>
      <description>save the monitor data periodically</description>
      <property name="jobName" value="ReminderJob"/>
      <property name="groupName" value="CollaborationSuite"/>
      <property name="job" value="org.exoplatform.calendar.service.ReminderJob"/>
      <property name="repeatCount" value="0"/>
      <property name="period" value="180000"/>
      <property name="startTime" value="+0"/>
      <property name="endTime" value=""/>
    </properties-param>
  </init-params>
</component-plugin>
```

Details:

- **Name:** `RecordsJob` - The name of a schedule job.
- **Set-method:** `addPeriodJob` - The plugin which registers the method.
- **Type:** `org.exoplatform.calendar.service.ReminderPeriodJob` - A class that executes to transfer data into database of Job Scheduler.

- **Description:** Add email reminder job to the JobSchedulerService.

See details about the init-params of the component in the following table:

Properties-param	Description	Property names	Description	Possible values	Default values
job.info	Save the monitor data periodically.	jobName	The name of job	String	ReminderJob
		groupName	The name of group job.	String	CollaborationSuite
		job	The name of actual job class.	Class path	org.exoplatform.calendar
		repeatCount	How many times to run this job.	Long	0, (use '0' which means 'run forever')
		period	The time interval (millisecond) between job executions.	Long	180000
		startTime	The time when the job starts running.	Integer	+0
		endTime	The time when the job ends running.	Integer	none

2.2.1.5. PopupReminderPeriodJob

You must use the following target component to use the plugin in this configuration:

```
<target-component>org.exoplatform.services.scheduler.JobSchedulerService</target-component>
```

The configuration is applied in *extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/cs-configuration.xml*.

```
<component-plugin>
  <name>PopupRecordsJob</name>
  <set-method>addPeriodJob</set-method>
  <type>org.exoplatform.calendar.service.PopupReminderPeriodJob</type>
  <description>add popup reminder job to the JobSchedulerService</description>
  <init-params>
    <properties-param>
      <name>job.info</name>
      <description>save the monitor data periodically</description>
      <property name="jobName" value="PopupReminderJob"/>
      <property name="groupName" value="CollaborationSuite"/>
      <property name="job" value="org.exoplatform.calendar.service.PopupReminderJob"/>
      <property name="repeatCount" value="0"/>
      <property name="period" value="6000"/>
      <property name="startTime" value="+0"/>
      <property name="endTime" value=""/>
    </properties-param>
    <properties-param>
      <name>popupreminder.info</name>
      <description>save the monitor data periodically</description>
      <property name="portalName" value="portal"/>
    </properties-param>
  </init-params>
</component-plugin>
```

```
</init-params>
</component-plugin>
```

Details:

- **Name:** `PopupRecordsJob` - The name of the job.
- **Set-method:** `addPeriodJob` - The plugin registering method.
- **Type:** `org.exoplatform.calendar.service.PopupReminderPeriodJob` - The class which executes to transfer the data into database of Job Scheduler.
- **Description:** Add popup reminder job to the JobSchedulerService.

See details about the init-params of the component in the following table:

- Properties-param: **job.info**. This param saves the monitor data periodically and includes the following sub-params:

Properties-param	Description	Property names	Description	Possible values	Default values
job.info	Save the monitor data periodically.	jobName	The name of job.	String	PopupReminderJob
		groupName	The name of group job.	String	CollaborationSuite
		job	The name of actual job class.	Class path	org.exoplatform.calendar
		repeatCount	How many times to run this job.	Long	0, (use '0' which means 'run forever')
		period	The time interval (millisecond) between job executions.	Long	6000
		startTime	The time when the job starts running.	Long	+0
		endTime	The time when the job ends running.	Integer	None
popupreminder.info	Save the monitor data periodically.	portalName	The name of the portal.	String	portal

2.2.1.6. AddActionsPlugin

The configuration of the AddActionsPlugin is found in *WEB-INF/cs-extension/cs/webservice/webservice-configuration.xml*.

It is used to register the listener named `org.exoplatform.webservice.cs.LastUpdateAction` and it is executed, basing on eventTypes.

```
<component>
  <type>org.exoplatform.services.jcr.impl.ext.action.SessionActionCatalog</type>
  <component-plugins>
    <component-plugin>
      <name>Last Update Action</name>
      <set-method>addPlugin</set-method>
      <type>org.exoplatform.services.jcr.impl.ext.action.AddActionsPlugin</type>
      <description>add actions plugin</description>
```

```
<init-params>
  <object-param>
    <name>actions</name>
    <object type="org.exoplatform.services.jcr.impl.ext.action.AddActionsPlugin$ActionsConfig">
      <field name="actions">
        <collection type="java.util.ArrayList">
          <value>
            <object type="org.exoplatform.services.jcr.impl.ext.action.ActionConfiguration">
              <field name="eventTypes">
                <string>addNode,changeProperty</string>
              </field>
              <field name="nodeTypes">
                <string>exo:calendarEvent</string>
              </field>
              <field name="actionClassName">
                <string>org.exoplatform.webservice.cs.LastUpdateAction</string>
              </field>
            </object>
          </value>
        </collection>
      </field>
    </object-param>
  </init-params>
</component-plugin>
</component-plugins>
</component>
```

- **object-param:** `Actions` - The name of the object.
- **object type:** `org.exoplatform.services.jcr.impl.ext.action.AddActionsPlugin$ActionsConfig` - A class used to register the following field names in the table below:

Field name	String	Description
eventTypes	addNode, changeProperty	The type of the event.
nodeTypes	exo:calendarEvent	The type of the node.
actionClassName	org.exoplatform.webservice.cs.LastUpdateAction	The registration class to execute the actions that the plugin requires.

2.2.2. Chat Configuration

The Chat Configuration is applied in `/extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/chat/chat-service-configuration.xml`.



Warning

The Chat portlet and its services are deprecated. It remains fully supported for eXo customers, however it will not receive any enhancement and will be removed from the product scope in the future.

2.2.2.1. HistoryPeriodJob

```
<external-component-plugins>
  <target-component>org.exoplatform.services.scheduler.JobSchedulerService</target-component>
  <component-plugin>
    <name>ChatRecordsJob</name>
    <set-method>addPeriodJob</set-method>
    <type>org.exoplatform.services.xmpp.connection.impl.HistoryPeriodJob</type>
  </component-plugin>
</external-component-plugins>
```

```

<description>add chat messages from Openfire Server to History</description>
<init-params>
  <properties-param>
    <name>job.info</name>
    <description>save the monitor data periodically</description>
    <property name="jobName" value="messageToHistoricalMessageJob"/>
    <property name="groupName" value="CollaborationSuite"/>
    <property name="job" value="org.exoplatform.services.xmpp.connection.impl.HistoryJob"/>
    <property name="repeatCount" value="0"/>
    <property name="period" value="3000"/>
    <property name="startTime" value="+0"/>
    <property name="endTime" value=""/>
  </properties-param>
  <properties-param>
    <name>history.info</name>
    <description>save the monitor data periodically</description>
    <property name="logBatchSize" value="50"/>
  </properties-param>
</init-params>
</component-plugin>
</external-component-plugins>

```

Details:

- **Name:** `ChatRecordsJob` - The name of the job.
- **Set-method:** `addPeriodJob` - The plugin which registers the method.
- **Type:** `org.exoplatform.services.xmpp.connection.impl.HistoryPeriodJob` - A class which executes to transfer the data into the database of Job Scheduler.
- **Description:** It is used to save chat messages from Openfire Server to History.

See details about the init-params of the component in the following table:

Properties-param	Description	Property names	Description	Possible values	Default values
job.info	Save the monitor data periodically.	jobName	The name of job.	String	messageToHistoricalMessageJob
		groupName	The name of group name.	String	CollaborationSuite
		job	The name of actual job class.	Class path	org.exoplatform.services.xmpp.connection.impl.HistoryJob
		repeatCount	How many times to run this job.	integer	0 (use '0' which means 'run forever')
		period	The time interval (millisecond) between job executions.	Long	3000
		startTime	The time the job starts running.	Long	+0
		endTime	The time the job ends running.	Long	none
history.info	Save the monitor data periodically.	logBatchSize	The maximum number of messages in the cache are saved once the job runs.	Integer	50

2.2.2.2. RequestFilterComponentPlugin

```
<external-component-plugins>
  <target-component>org.exoplatform.services.rest.impl.RequestHandlerImpl</target-component>
  <component-plugin>
    <name>ws.rs.request.filter</name>
    <set-method>addPlugin</set-method>
    <type>org.exoplatform.services.rest.impl.RequestFilterComponentPlugin</type>
    <init-params>
      <value-param>
        <name>RESTMPPServiceFilter</name>
        <value>org.exoplatform.services.xmlpp.rest.filter.RESTMPPServiceFilter</value>
      </value-param>
    </init-params>
  </component-plugin>
</external-component-plugins>
```

Details:

- **Name:** `ws.rs.request.filter` - The name of the filter.
- **Set-method:** `addPlugin` - The plugin which registers the method.
- **Type:** `org.exoplatform.services.rest.impl.RequestFilterComponentPlugin` - The class which executes the requests of the plugin.
- **Description:** It is used to delete the session of a user when he suddenly closes the browser or changes the session.

See details about the init-params of the component in the following table:

Value-param	Description	Possible value	Default value
RESTMPPServiceFilter	The name of the filter.	Class path	org.exoplatform.services.xmlpp.re

2.2.2.3. AuthenticationLoginListener & AuthenticationLogoutListener

Two functions, including login and logout of XMPPRestService, are responsible for creating a new XMPPSessionImpl and destroying an existing XMPPSessionImpl. They can be called by listeners: AuthenticationLoginListener, AuthenticationLogoutListener or from client(browser) through the REST protocol (jabberLogin, jabberLogout in UIMainChatWindow.js). You must use the same target component for two external component plugins:

```
<target-component>org.exoplatform.services.listener.ListenerService</target-component>
```

AuthenticationLoginListener

```
<component-plugin>
  <name>exo.core.security.ConversationRegistry.register</name>
  <set-method>addListener</set-method>
  <type>org.exoplatform.services.xmlpp.connection.impl.AuthenticationLoginListener</type>
  <description>description</description>
</component-plugin>
```

Details:

- **Name:** `exo.core.security.ConversationRegistry.register` - The name of plugin.
- **Set-method:** `addListener` - The plugin which registers the method.

- **Type:** `org.exoplatform.services.xmpp.connection.impl.AuthenticationLoginListener` - The class to execute the requests of the plugin.
- **Description:** It is used to start the session and log in the chat server.

AuthenticationLogoutListener

```
<component-plugin>
  <name>exo.core.security.ConversationRegistry.unregister</name>
  <set-method>addListener</set-method>
  <type>org.exoplatform.services.xmpp.connection.impl.AuthenticationLogoutListener</type>
  <description>description</description>
</component-plugin>
```

Details:

- **Name:** `exo.core.security.ConversationRegistry.unregister` - The name of plugin.
- **Set-method:** `addListener` - The plugin which registers the method.
- **Type:** `org.exoplatform.services.xmpp.connection.impl.AuthenticationLogoutListener` - A class to execute the requests of the plugin.
- **Description:** It is used to end the session and log in the chat server.

2.2.3. Contact Configuration

The Contact Application is configured by three external component plugins: `NewUserListener`, `NewMembershipListener` and `UpdateUserProfileListener`. They use the same target component:

```
<target-component>org.exoplatform.services.organization.OrganizationService</target-component>
```

The Contact configuration is found in `extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/contact/contact-service-configuration.xml`.

NewUserListener

```
<component-plugin>
  <name>contact.new.user.event.listener</name>
  <set-method>addListenerPlugin</set-method>
  <type>org.exoplatform.contact.service.impl.NewUserListener</type>
  <description>description</description>
</component-plugin>
```

Details:

- **Name:** `contact.new.user.event.listener` - The name of listener.
- **Set-method:** `addListenerPlugin` - The plugin which registers the method.
- **Type:** `org.exoplatform.contact.service.impl.NewUserListener` - A class that executes all requirements of the plugin.
- **Description:** It is used to initialize personal contact data for users.

NewMembershipListener

```
<component-plugin>
  <name>contact.new.membership.event.listener</name>
  <set-method>addListenerPlugin</set-method>
  <type>org.exoplatform.contact.service.impl.NewMembershipListener</type>
  <description>description</description>
</component-plugin>
```

Details:

- **Name:** `contact.new.membership.event.listener` - The name of the listener.
- **Set-method:** `addListenerPlugin` - The plugin which registers the method. Keep this value.
- **Type:** `org.exoplatform.contact.service.impl.NewMembershipListener` - The class which executes all requirements of the plugin.
- **Description:** It is used to initialize an address book for a specific group.

UpdateUserProfileListener

```
<component-plugin>
  <name>contact.new.userprofile.event.listener</name>
  <set-method>addListenerPlugin</set-method>
  <type>org.exoplatform.contact.service.impl.UpdateUserProfileListener</type>
  <description>description</description>
</component-plugin>
```

Details:

- **Name:** `contact.new.userprofile.event.listener` - The name of the listener.
- **Set-method:** `addListenerPlugin` - The plugin which registers the method. Keep this value.
- **Type:** `org.exoplatform.contact.service.impl.UpdateUserProfileListener` - The class which executes all the requirements of the plugin.
- **Description:** It is used to update the personal profile of a user when he changes it on the portal.

2.2.4. Content Configuration

The Content application, such as RSS reader of Collaboration, is configured by two external component plugins: `RSSContentPlugin` and `DescriptionPlugin`. Both the external components plugins use the same target component:

```
<target-component>org.exoplatform.content.service.ContentDAO</target-component>
```

This content configuration is applied in `extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/content/content-service-configuration.xml`.

RSSContentPluginDescriptionPlugin

```
<component-plugin>
  <name>rssreader.listener</name>
  <set-method>addPlugin</set-method>
  <type>org.exoplatform.content.service.RSSContentPlugin</type>
  <description>rss reader plugin</description>
```

```
</component-plugin>
```

Details:

- **Name:** `rssreader.listener` - The name of the listener.
- **Set-method:** `addPlugin` - The plugin which registers the method. Keep this value.
- **Type:** `org.exoplatform.content.service.RSSContentPlugin` - A class which extends `ContentPlugin` and implements the `loadContentMeta` method to get content items.
- **Description:** It is a formater used to analyze the data from a RSS resource.

DescriptionPlugin

```
<component-plugin>
  <name>description.listener</name>
  <set-method>addPlugin</set-method>
  <type>org.exoplatform.content.service.DescriptionPlugin</type>
  <description>Description plugin</description>
</component-plugin>
```

Details:

- **Name:** `description.listener` - The name of the listener.
- **Set-method:** `addPlugin` - The plugin registering method. Keep this value.
- **Type:** `org.exoplatform.content.service.DescriptionPlugin` - A class which executes all requirements of the plugin.
- **Description:** It is a plugin to represent data from a RSS source.

2.2.5. Mail Configuration

**Warning**

The Mail portlet and its services are deprecated. It remains fully supported for eXo customers, however it will not receive any enhancement and will be removed from the product scope in the future.

AuthenticationLogoutListener

In the Mail application of Collaboration, when a user checks messages for one account, the remote mailbox fetch is performed as a background job. Before Collaboration 1.2, the job was continued until all messages had been retrieved or when the user stopped the check through the UI. Hence, even when a user was not logged in, the background job was continued. This can be the resource intensive for the server if many users have large mailboxes. Since Collaboration 1.2, one capability is added to halt the background job when the user session terminates (logout or timeout). It makes Collaboration more friendly with server resources. If you want to activate this feature, you need to add a bunch of the xml configuration in `/extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/mail/mail-service-configuration.xml`:

```
<external-component-plugins>
  <target-component>org.exoplatform.services.listener.ListenerService</target-component>
  <component-plugin>
    <name>exo.core.security.ConversationRegistry.unregister</name>
    <set-method>addListener</set-method>
    <type>org.exoplatform.mail.service.AuthenticationLogoutListener</type>
    <description>description</description>
```

```
</component-plugin>
</external-component-plugins>
```

Details:

- **Name:** `exo.core.security.ConversationRegistry.unregister` - The name of listener.
- **Set-method:** `addListener` The plugin which registers the method. Keep this value.
- **Type:** `org.exoplatform.mail.service.AuthenticationLogoutListener` - A class which executes all requirements of the plugin.
- **Description:** It is a plugin used to stop checking mails of a user when he logs out.

MailSettingConfigPlugin

Since Collaboration 2.2.0, *MailSettingConfigPlugin* is used to define the behavior, for example, showing/hiding fields and checking/unchecking checkboxes, of email account settings in the mail-server-configuration.xml file. It allows administrators to preconfigure all settings and to specify if end-users have the modification right on each specific setting or not.

```
<external-component-plugins>
  <target-component>org.exoplatform.mail.service.MailService</target-component>
  <component-plugin>
    <name>cs.mail.service.settings</name>
    <set-method>addPlugin</set-method>
    <type>org.exoplatform.mail.service.MailSettingConfigPlugin</type>
    <description>description</description>
    <init-params>
      <object-param>
        <name>leaveOnServer</name>
        <description>options to keep a copy of the message on the mail server after eXo Mail has downloaded the message</description>
        <object type="org.exoplatform.mail.service.MailSettingConfig">
          <field name="name"><string>leaveOnServer</string></field>
          <field name="userAllowed"><boolean>true</boolean></field>
          <field name="defaultValue"><string>true</string></field>
        </object>
      </object-param>
      <object-param>
        <name>incomingServer</name>
        <description>default incoming server to check for new mails.</description>
        <object type="org.exoplatform.mail.service.MailSettingConfig">
          <field name="name"><string>incomingServer</string></field>
          <field name="userAllowed"><boolean>true</boolean></field>
          <field name="defaultValue"><string>imap.gmail.com</string></field>
        </object>
      </object-param>
      <object-param>
        <name>incomingPort</name>
        <description>default port incoming server to check for new mails.</description>
        <object type="org.exoplatform.mail.service.MailSettingConfig">
          <field name="name"><string>incomingPort</string></field>
          <field name="userAllowed"><boolean>true</boolean></field>
          <field name="defaultValue"><string>993</string></field>
        </object>
      </object-param>
      <object-param>
        <name>outgoingServer</name>
        <description>description</description>
        <object type="org.exoplatform.mail.service.MailSettingConfig">
          <field name="name"><string>outgoingServer</string></field>
          <field name="userAllowed"><boolean>true</boolean></field>
          <field name="defaultValue"><string>smtp.gmail.com</string></field>
        </object>
      </object-param>
      <object-param>
        <name>outgoingPort</name>
        <description>description</description>
        <object type="org.exoplatform.mail.service.MailSettingConfig">
          <field name="name"><string>outgoingPort</string></field>
```

```

    <field name="userAllowed"><boolean>true</boolean></field>
    <field name="defaultValue"><string>465</string></field>
  </object>
</object-param>
<object-param>
  <name>acceptIncomingSecureAuthentication</name>
  <description>description</description>
  <object type="org.exoplatform.mail.service.MailSettingConfig">
    <field name="name"><string>acceptIncomingSecureAuthentication</string></field>
    <field name="userAllowed"><boolean>true</boolean></field>
    <field name="defaultValue"><string>true</string></field>
  </object>
</object-param>
<object-param>
  <name>incomingSecureAuthentication</name>
  <description>description</description>
  <object type="org.exoplatform.mail.service.MailSettingConfig">
    <field name="name"><string>incomingSecureAuthentication</string></field>
    <field name="userAllowed"><boolean>true</boolean></field>
    <field name="defaultValue"><string>starttls</string></field>
  </object>
</object-param>
<object-param>
  <name>incomingAuthenticationMechanism</name>
  <description>description</description>
  <object type="org.exoplatform.mail.service.MailSettingConfig">
    <field name="name"><string>incomingAuthenticationMechanism</string></field>
    <field name="userAllowed"><boolean>true</boolean></field>
    <field name="defaultValue"><string>plain</string></field>
  </object>
</object-param>
<object-param>
  <name>acceptOutgoingSecureAuthentication</name>
  <description>description</description>
  <object type="org.exoplatform.mail.service.MailSettingConfig">
    <field name="name"><string>acceptOutgoingSecureAuthentication</string></field>
    <field name="userAllowed"><boolean>true</boolean></field>
    <field name="defaultValue"><string>true</string></field>
  </object>
</object-param>
<object-param>
  <name>outgoingSecureAuthentication</name>
  <description>description</description>
  <object type="org.exoplatform.mail.service.MailSettingConfig">
    <field name="name"><string>outgoingSecureAuthentication</string></field>
    <field name="userAllowed"><boolean>true</boolean></field>
    <field name="defaultValue"><string>starttls</string></field>
  </object>
</object-param>
<object-param>
  <name>outgoingAuthenticationMechanism</name>
  <description>description</description>
  <object type="org.exoplatform.mail.service.MailSettingConfig">
    <field name="name"><string>outgoingAuthenticationMechanism</string></field>
    <field name="userAllowed"><boolean>true</boolean></field>
    <field name="defaultValue"><string>plain</string></field>
  </object>
</object-param>
</init-params>
</component-plugin>
</external-component-plugins>

```

Details:

- **Name:** `cs.mail.service.settings` - The name of the mail settings.
- **Set-method:** `addPlugin` - The plugin which registers the method.
- **Type:** `org.exoplatform.mail.service.MailSettingConfigPlugin` - The plugin's class name.
- **object type:** `org.exoplatform.mail.service.MailSettingConfig` - A class of object that contains a specific setting.

- **Description:** Describes what the setting is or what the setting does.

Object-param	Description
leaveOnServer	Options to keep the message on the mail server after it has been downloaded to the Mail application of Collaboration.
incomingServer	The default incoming server used to check new mails.
incomingPort	The default port of the incoming server used to check new mails.
outgoingServer	The default port of the outgoing server used to send new mails.
outgoingPort	The default outgoing port to send new mails.
acceptIncomingSecureAuthentication	Accept the secure authentication of the incoming server.
incomingSecureAuthentication	The type of incoming secure authentication.
incomingAuthenticationMechanism	The type of incoming authentication mechanism.
acceptOutgoingSecureAuthentication	Accepts the secure authentication of the outgoing server.
outgoingSecureAuthentication	The type of outgoing secure authentication.
outgoingAuthenticationMechanism	The type of incoming authentication mechanism.

The object parameters have the same field names, but the values of the parameters are different.

Field names	Description	Possible values
name	The field name in the account settings form.	String
userAllowed	Allow users to edit the field in the account settings form or not.	Boolean
defaultValue	The default value of the field in the account settings form.	String

2.2.6. Social Integration Configuration

The Social Integration Configuration is applied in `/extension/webapp/src/main/webapp/WEB-INF/cs-extension/cs/social-integration/social-integration-configuration.xml`.

2.2.6.1. CalendarDataInitialize

```
<external-component-plugins>
<target-component>org.exoplatform.social.core.space.spi.SpaceService</target-component>
<component-plugin>
<name>CalendarDataInitialize</name>
<set-method>addSpaceListener</set-method>
<type>org.exoplatform.cs.ext.impl.CalendarDataInitialize</type>
<init-params>
<value-param>
<name>portletName</name>
<value>CalendarPortlet</value>
</value-param>
</init-params>
</component-plugin>
</external-component-plugins>
```

Details:

- **Name:** `CalendarDataInitialize` - The name of plugin.
- **Set-method:** `addSpaceListener` - The plugin which registers the method.
- **Type:** `org.exoplatform.cs.ext.impl.CalendarDataInitialize` - A class that executes all requirements of the plugin.
- **Description:** It is used to initialize a calendar for a group in a specific space.

See the details about the init-params of the component in the following table:

value-param	Description	Possible value	Default value
portletName	The name of the portlet	String	CalendarPortlet

2.2.6.2. ContactDataInitialize

```
<external-component-plugins>
<target-component>org.exoplatform.social.core.space.spi.SpaceService</target-component>
<component-plugin>
  <name>ContactDataInitialize</name>
  <set-method>addSpaceListener</set-method>
  <type>org.exoplatform.cs.ext.impl.ContactDataInitialize</type>
  <init-params>
    <value-param>
      <name>portletName</name>
      <value>ContactPortlet</value>
    </value-param>
  </init-params>
</component-plugin>
</external-component-plugins>
```

Details:

- **Name:** `ContactDataInitialize` - The name of the plugin.
- **Set-method:** `addSpaceListener` - The plugin which registers the method.
- **Type:** `org.exoplatform.cs.ext.impl.ContactDataInitialize` - A class that executes all the requires of the plugin.
- **Description:** It is a plugin used to initialize an address book for a group in a specific space.

See the details about the init-params of the component in the following table:

value-param	Possible value	Default value	Description
portletName	String	ContactPortlet	The name of the portlet.

2.2.6.3. ContactSpaceActivityPublisher

```
<external-component-plugins>
<target-component>org.exoplatform.contact.service.ContactService</target-component>
<component-plugin>
  <name>ContactEventListener</name>
  <set-method>addListenerPlugin</set-method>
  <type>org.exoplatform.cs.ext.impl.ContactSpaceActivityPublisher</type>
</component-plugin>
</external-component-plugins>
```

Details:

- **Name:** `ContactEventListener` - The name of the plugin.
- **Set-method:** `addListenerPlugin` - The plugin which registers the method.
- **Type:** `org.exoplatform.cs.ext.impl.ContactSpaceActivityPublisher` - A class that executes all requirements of the plugin.
- **Description:** It is a plugin used to customize the activity status of a specific space when an event happens on an address book.

2.2.6.4. CalendarSpaceActivityPublisher

```
<external-component-plugins>
<target-component>org.exoplatform.calendar.service.CalendarService</target-component>
<component-plugin>
<name>CalendarEventListener</name>
<set-method>addEventListenerPlugin</set-method>
<type>org.exoplatform.cs.ext.impl.CalendarSpaceActivityPublisher</type>
</component-plugin>
</external-component-plugins>
```

Details:

- **Name:** `CalendarEventListener` - The name of the plugin.
- **Set-method:** `addEventListenerPlugin` - The plugin which registers the method.
- **Type:** `org.exoplatform.cs.ext.impl.CalendarSpaceActivityPublisher` - A class that executes all the requires of the plugin.
- **Description:** It is a plugin used to customize the activity status of a specific space when an event happens on a calendar.

2.2.6.5. PortletPreferenceRequiredPlugin

```
<external-component-plugins>
<target-component>org.exoplatform.social.core.space.spi.SpaceService</target-component>
<component-plugin>
<name>portlets.prefs.required</name>
<set-method>setPortletsPrefsRequired</set-method>
<type>org.exoplatform.social.core.application.PortletPreferenceRequiredPlugin</type>
<init-params>
<values-param>
<name>portletsPrefsRequired</name>
<value>CalendarPortlet</value>
<value>ContactPortlet</value>
</values-param>
</init-params>
</component-plugin>
</external-component-plugins>
```

Details:

- **Name:** `ortlets.prefs.required` - The name of the plugin.
- **Set-method:** `setPortletsPrefsRequired` - The plugin which registers the method.
- **Type:** `org.exoplatform.social.core.application.PortletPreferenceRequiredPlugin` - A class that executes all the requires of the plugin.
- **Description:** It is a plugin used to declare the application that will automatically create database.

See the details about the init-params of the component in the following table:

value-param	Possible value	Default value	Description
portletsPrefsRequired	String	ContactPortlet / ContactPortlet	The name of plugin added to SpaceService.

2.3. Data Injectors

- [ContactDataInjector](#)
Instructions on how to use the ContactDataInjector plug-in that manages data injection in the Address Book application.
- [CalendarDataInjector](#)
Instructions on how to use the CalendarDataInjector plug-in that manages data injection in the Calendar application.
- [MailDataInjector](#)
Instructions on how to use the MailDataInjector plug-in that manages data injection in the Mail application.

Data injectors are used to create data for performance test. This part will describe which data injectors are implemented in Collaboration and how to use them.

In Collaboration, data injectors are implemented as plug-ins attached to the *org.exoplatform.services.bench.DataInjectorService* service and handled via RESTful requests. This service is normally registered to the portal container as a general component.

To use this service, add the following dependency to the Classpath of the server:

```
<dependency>
  <groupId>org.exoplatform.commons</groupId>
  <artifactId>exo.platform.commons.component</artifactId>
</dependency>
```

To activate the *DataInjectorService* component, you need to register it to a portal container by the following configuration:

```
<component>
  <type>org.exoplatform.services.bench.DataInjectorService</type>
</component>
```

When you want to inject data for a specific product, you must implement a class which extends "org.exoplatform.services.bench.DataInjector" and register it to the *DataInjectorService* component as a plug-in.

In Collaboration, there are three plug-ins attached to the *DataInjectorService* component:

- ContactDataInjector
- CalendarDataInjector
- MailDataInjector

See also

- [Components](#)
- [External Component Plugins](#)
- [eXo Chatserver Configuration](#)

2.3.1. ContactDataInjector

The *ContactDataInjector* plug-in is used to manage data injection of the Address Book application.

To use this plug-in, do as follows:

1. Add the following configuration to the *configuration.xml* file to register the plug-in to the *DataInjectorService* component:

```
<external-component-plugins>
  <target-component>org.exoplatform.services.bench.DataInjectorService</target-component>
  <component-plugin>
    <name>ContactDataInjector</name>
    <set-method>addInjector</set-method>
    <type>org.exoplatform.contact.service.bench.ContactDataInjector</type>
    <description>inject data for Contact</description>
    <init-params>
      <value-param>
        <name>mA</name> <!-- maximum number of address books -->
        <value>5</value>
      </value-param>
      <value-param>
        <name>mC</name> <!-- maximum number of contacts per a address books -->
        <value>10</value>
      </value-param>
    </init-params>
  </component-plugin>
</external-component-plugins>
```

In which:

- **Name:** `ContactDataInjector`
- **Set-method:** `addInjector`
- **Type:** `org.exoplatform.contact.service.bench.ContactDataInjector`

Parameters	Possible Values	Default Values	Description
mA	number	5	The maximum number of address books of the Address Book application in each injection.
mC	number	5	The maximum number of contacts of an address book in each injection.

2. Execute the injector by the RESTful request as follows:

```
http://{domain}/{rest}/bench/inject/ContactDataInjector?mA=5&mC=10
```

In which:

- **{domain}**: The domain name of the server.
- **{rest}**: The name of eXo REST service.

2.3.2. CalendarDataInjector

The *CalendarDataInjector* plug-in is used to manage data injection in the Calendar application.

To use this plug-in, do as follows:

1. Add the following configuration to the *configuration.xml* file to register the plug-in to the *DataInjectorService* component:

```
<external-component-plugins>
  <target-component>org.exoplatform.services.bench.DataInjectorService</target-component>
  <component-plugin>
    <name>CalendarDataInjector</name>
    <set-method>addInjector</set-method>
    <type>org.exoplatform.calendar.bench.CalendarDataInjector</type>
    <description>inject data for Calendar</description>
    <init-params>
      <value-param>
        <name>mCt</name> <!-- maximum number of categories -->
        <value>5</value>
      </value-param>
      <value-param>
        <name>mEcat</name> <!-- maximum number of event categories -->
        <value>10</value>
      </value-param>
      <value-param>
        <name>mCal</name> <!-- maximum number of calendars -->
        <value>10</value>
      </value-param>
      <value-param>
        <name>mEv</name> <!-- maximum number of events -->
        <value>5</value>
      </value-param>
      <value-param>
        <name>mTa</name> <!-- maximum number of tasks -->
        <value>5</value>
      </value-param>
      <value-param>
        <name>typeOfInject</name> <!-- type of inject -->
        <value>all</value> <!-- string all/public/private -->
      </value-param>
    </init-params>
  </component-plugin>
</external-component-plugins>
```

In which:

- **Name:** CalendarDataInjector
- **Set-method:** addInjector
- **Type:** org.exoplatform.calendar.bench.CalendarDataInjector

Parameters	Possible Values	Default Values	Description
mCt	number	5	The maximum number of categories in each injection.
mEcat	number	10	The maximum number of event categories in each injection.
mCal	number	10	The maximum number of calendars in each injection.
mEv	number	5	The maximum number of events in one calendar in each injection.
mTa	number	5	

Parameters	Possible Values	Default Values	Description
			The maximum number of tasks in one calendar in each injection.
typeOfInject	String	all	The type of injection, including "public", "private" and "all". If the type is set as "public", only public calendars are created. If the type is set as "private", only personal calendars are create. If the type is set as "all", both the public and private ones are created.

2. Execute the injector by the RESTful request as follows.

```
http://{domain}/{rest}/bench/inject/CalendarDataInjector?mCt=5&mEcat=10&mCal=10&mEv=20&mTa=20&typeOfInject=private
```

2.3.3. MailDataInjector

The *MailDataInjector* is used to manage data injection in the Mail application.

Because of the quite complicated architecture of the Mail application in Collaboration, the injector uses a simple mail server (a mock server) to simulate the way a mail server works. This will create real mail data without mocking effort from the injector and create a reliable testing environment.

To use the injector, do as follows:

1. Add the Greenmail library to the classpath of the web server (in tomcat, copy it to the **lib** folder). The library is Greenmail 1.3.1b but including some bug fixes which are not updated in the counterpart version of Icegreen. (To have the library, contact eXo Support team).
2. Initialize this component as a service of GateIn, then it will be invoked by MailDataInjector.

```
<component>
  <type>org.exoplatform.mail.service.bench.SimpleMailServerInitializer</type>
</component>
```

3. Register *MailDataInjector* to *DataInjectorService* by the following configuration:

```
<external-component-plugins>
  <target-component>org.exoplatform.services.bench.DataInjectorService</target-component>
  <component-plugin>
    <name>MailDataInjector</name>
    <set-method>addInjector</set-method>
    <type>org.exoplatform.mail.service.bench.MailDataInjector</type>
    <description>inject data for Contact</description>
  </component-plugin>
</external-component-plugins>
```

In which:

- **Name:** MailDataInjector
- **Set-method:** addInjector
- **Type:** org.exoplatform.mail.service.bench.MailDataInjector

Usage of MailDataInjector

- To insert mail data into the Mail application, the request link is as follows:

```
http://{domain}/{rest}/bench/inject/MailDataInjector/?users=mary,root&accounts=2,account&inPro=IMAP&check=true&msgs=100&attSize=100
```

Params	Values	Description
users	String	The list of users separated by commas.
accounts	String	The number of accounts injected by the data injector. This value consists of two parts separated by commas: the first is the number of accounts of an user, the second is the prefix of the account Id.
inPro	String	The incoming protocol. The possible values are: POP3 and IMAP.
check	Boolean	Specify if checking mails after the data are created on the mail server or not. If the value is true, the injector will execute checking new message tasks sequentially. This task can take some time if the data are large.
msgs	Number	The number of messages will be available in each account.
attSize	Number	The size of an attachment. If it does not exist or is equal to 0, no file is attached to the mail message.

- To reject mail data from the Mail application, the request link is as follows:

```
http://{domain}/{rest}/bench/reject/MailDataInjector/?users=root&accounts=2,account
```

This link will request for removing 2 accounts of "root" of which Id starts with "account".



Note

By default, such settings have been declared in "csdemo.war/WEB-INF/conf/csdemo/cs/bench-configuration.xml". Therefore, to save time, you should import the *bench-configuration.xml* file to "csdemo.war/WEB-INF/conf/configuration.xml", and then modify it as your purpose rather than create a new one.

2.4. eXo Chatserver Configuration

- **Openfire Configuration**

Introduction to Openfire, its configurations and eXo specific configuration.

- **System Configuration**

Information about several ports used for communication by Openfire.

- **AS configuration**

Information about the AS configuration that supports SSO in Collaboration.

See also

- [Components](#)
- [External Component Plugins](#)
- [Data Injectors](#)

2.4.1. Openfire Configuration

The Chat service of Collaboration is a Jabber engine powered by Openfire. eXo Platform will delegate the actual Jabber protocol communication to Openfire.

You have the full latitude to configure Openfire. There are two possible ways to do it:

- The admin console: <http://localhost:9090/>.
- The `openfire.xml` file in `$openfire_home/conf/`.

Configuration in Openfire.xml

The Openfire server has a single configuration file called `openfire.xml` and located under the `exo-openfire/conf` directory. Configuration is based on properties expressed in an XML syntax. For example, to set the property `prop.name.is.blah=value`, you would write this xml snippet:

```
<prop>
  <name>
    <is>
      <blah>value</blah>
    </is>
  </name>
</prop>
```

Openfire has an extensive list of configuration properties. You can read a list of all properties on this page: <http://www.igniterealtime.org/community/docs/DOC-1061>.

eXo specific configuration

The Collaboration bundle comes with a pre-configured Openfire server. It is bundled with some eXo plugins and configurations that allow connectivity with eXo Platform. The key properties for integration are:

- `provider.auth.className`: An implementation of the `AuthProvider` interface for authentication of users on the Chat server.
- `provider.users.className`: An implementation of the `UserProvider` interface to which Openfire will delegate users management.

- `provider.groups.className`: An implementation of the `GroupProvider` interface to which Openfire will delegate groups management.

eXo Platform provides implementations for these 3 interfaces with `ExoAuthProvider`, `ExoUserProvider`, `ExoGroupProvider`. These implementations are based on the eXo REST framework and let you configure the endpoints within the `openfire.xml` file with additional properties:

Property	Default value	Description
<code>eXo.env.serverBaseUrl</code>	<code>http://localhost:8080/</code>	The base URL of the server.
<code>eXo.env.restContextName</code>	<code>rest</code>	The context name of REST Web application.
<code>provider.authorizedUser.name</code>	<code>root</code>	The username to authenticate to access the HTTP REST service.
<code>provider.authorizedUser.password</code>	<code>gtn</code>	The password matching with <code>provider.authorizeduser.name</code> .
<code>exoAuthProvider.authenticationURL</code>	<code>/organization/authenticate/</code>	The URL to authenticate users.
<code>exoAuthProvider.authenticationMethod</code>	<code>POST</code>	The HTTP method used for the authentication method.
<code>exoUserProvider.findUsersURL</code>	<code>/organization/xml/user/find-all/</code>	The URL to find all users.
<code>exoUserProvider.findUsersMethod</code>	<code>GET</code>	The HTTP method used to find all users in the system.
<code>exoUserProvider.getUsersURL</code>	<code>/organization/xml/user/view-range/</code>	The URL to retrieve a range of users.
<code>exoUserProvider.getUsersMethod</code>	<code>GET</code>	The HTTP method used for user/view-range.
<code>exoUserProvider.usersCountURL</code>	<code>/organization/xml/user/count</code>	The URL to count the number of users.
<code>exoUserProvider.usersCountMethod</code>	<code>GET</code>	The HTTP method used to count the number of users.
<code>exoUserProvider.userInfoURL</code>	<code>/organization/xml/user/info/</code>	The URL to get the information of users.
<code>exoUserProvider.userInfoMethod</code>	<code>GET</code>	The HTTP method used to get the information of users.
<code>exoGroupProvider.groupInfoURL</code>	<code>/organization/xml/group/info/</code>	The URL to get the information of a group of users.
<code>exoGroupProvider.groupInfoMethod</code>	<code>GET</code>	The HTTP method used to get the information of a group of users.
<code>exoGroupProvider.getGroupsAllURL</code>	<code>/organization/xml/group/view-all/</code>	The URL to view a list of all user groups.
<code>exoGroupProvider.getGroupsAllMethod</code>	<code>GET</code>	The HTTP method used to view a list of all user groups.
<code>exoGroupProvider.getGroupsRangeURL</code>	<code>/organization/xml/group/view-from-to/</code>	The URL to list groups in a specific range.
<code>exoGroupProvider.getGroupsRangeMethod</code>	<code>GET</code>	The HTTP method used to list groups in a specific range.
<code>exoGroupProvider.getGroupsForUserURL</code>	<code>/organization/xml/group/groups-for-user/</code>	The URL to list groups to which a user belongs.

Property	Default value	Description
<code>exoGroupProvider.getGroupsForUserGET</code>	<code>Method</code>	The HTTP method used to list groups to which a user belongs.
<code>exoGroupProvider.groupsCountURL</code>	<code>/organization/xml/group/count</code>	The URL to count the number of groups.
<code>exoGroupProvider.groupsCountMeth</code>	<code>GET</code>	The HTTP method used to count the number of groups.

As you can see, the default settings will only work if eXo Platform is deployed on the same host as Openfire, on the port 8080.



Note

`restContextName` is used to specify the Openfire server that is dedicated for the portal. If the `eXo.env.restContextName` system property exists, it will override this value.

The `eXo.env.restContextName` system property can be set by specifying the `-D` option to the Java command when running Openfire.

For example:

- If the Openfire server is dedicated for the portal named "portal", the command will have the following format: `java -DeXo.env.restContextName=rest -jar ../lib/startup.jar`.
- If the Openfire server is dedicated for the portal named "csdemo", the command will have following format: `java -DeXo.env.restContextName=rest-csdemo -jar ../lib/startup.jar`.

By default, the Openfire server is dedicated to the portal named "portal".

2.4.2. System Configuration

Openfire makes use of several ports for communication.

Interface	Port	Type	Description
All addresses	5222	Client to Server	The standard port for clients is to connect to the server. Connection may or may not be encrypted. You can update the security settings for this port.
All addresses	9090 & 9091	Admin Console	The ports used for the unsecured and secured Openfire Admin Console accesses respectively.
All addresses	7777	File Transfer Proxy	The port used for the proxy service that allows files to be transferred between two entities on the XMPP network.
All addresses	3478 & 3479	STUN Service	The port used for the service that ensures connectivity between entities behind a NAT.

You can view the table above in `http://hostname:9090/index.jsp` after you have logged into the Openfire's web console and also customize those ports by yourself.

2.4.3. AS configuration

To enable the propagation of identity across the Chat webapp, you are required to enable the SSO valve on the Tomcat-based Application server.

- For the Jboss server, edit `jboss/server/default/deploy/jboss-web.deployer/server.xml`.
- For the Tomcat server, edit `tomcat/conf/server.xml`. The valve should already be there, you just need to uncomment it if it is not already done.

```
<Valve className="org.apache.catalina.authenticator.SingleSignOn"/>
```

In case of the cluster deployment, you may want to use `ClusteredSingleSignOn` instead.

```
<Valve className="org.jboss.web.tomcat.service.sso.ClusteredSingleSignOn"/>
```


Developer reference

This chapter supplies you with the basic knowledge of overridden components and REST APIs implemented in Collaboration via the following topics:

- **Extension points**

Knowledge of some overridable components in Collaboration, including ContentDAO, ContactLifeCycle, Transport, and EventLifeCycle.

- **Public REST APIs**

Details (such as name, service URL, service URL endpoint, location, parameter, and description) of Public REST APIs used in the Collaboration applications.

- **JCR Structure**

Description of the JCR structure of the main applications in Collaboration.

3.1. Extension points

- **ContentDAO**

An overridable component which is used in the Content application (or called RSS reader) of Collaboration.

- **ContactLifeCycle**

An interface which extends the capabilities of eXo Platform. The *ContactLifeCycle* lets you be notified during the lifecycle of an address book's contact when a contact is added or modified.

- **Transport**

An overridable component which is used in the Chat application of Collaboration.

- **EventLifeCycle**

An extension point which is used in the Calendar application of Collaboration.

There are some overridable components in Collaboration so that you can control how these components work by implementing or extending default implementations and then reconfigure these new components in the `configuration.xml` file.

See also

- [Public REST APIs](#)
- [JCR Structure](#)

3.1.1. ContentDAO

ContentDAO is an overridable component used in the Content application (or called RSS reader) of Collaboration.

You can find the configuration file at `WEB-INF/cs-extension/cs/content/content-service-configuration.xml` with the declaration as below:

```
<component>
  <key>org.exoplatform.content.service.ContentDAO</key>
```

```
<type>org.exoplatform.content.service.impl.ContentDAOImpl</type>
</component>
```

The example below is an example of plugin configuration:

```
<external-component-plugins>
  <target-component>org.exoplatform.content.service.ContentDAO</target-component>
  <component-plugin>
    <name>rssreader.listener</name>
    <set-method>addPlugin</set-method>
    <type>org.exoplatform.content.service.RSSContentPlugin</type>
    <description>rss reader plugin</description>
  </component-plugin>

  <component-plugin>
    <name>description.listener</name>
    <set-method>addPlugin</set-method>
    <type>org.exoplatform.content.service.DescriptionPlugin</type>
    <description>Description plugin</description>
  </component-plugin>
</external-component-plugins>
```

3.1.2. ContactLifeCycle

ContactLifeCycle is an interface to extend the capabilities of eXo Platform. The *ContactLifeCycle* lets you be notified during the lifecycle of an address book's contact when a contact is added or modified.

An example of *ContactLifeCycle* has been implemented to integrate the Address Book application in the eXo Social's Spaces. See the following configuration at: *ext/social-integration/src/main/resources/conf/portal/configuration.xml*.

See the following example:

```
<external-component-plugins>
  <target-component>org.exoplatform.contact.service.ContactService</target-component>
  <component-plugin>
    <name>ContactEventListener</name>
    <set-method>addListenerPlugin</set-method>
    <type>org.exoplatform.cs.ext.impl.ContactSpaceActivityPublisher</type>
  </component-plugin>
</external-component-plugins>
```

Details:

- **ContactSpaceActivityPublisher** implements **ContactLifeCycle**. This implementation publishes activities in the space activity stream to notify of new and updated contacts in the space address book.

3.1.3. Transport

Transport is an overridable component used in the Chat application of Collaboration.

This overridable component is used to help users add the protocol to the Chat application, such as: ICQ, YAHOO, MSN, XMPP, AIM, GTALK.

The Chat application of Collaboration only uses the XMPP protocol that is implemented in the *XMPPTransport* object.

3.1.4. EventLifeCycle

EventLifeCycle is an extension point used in the Calendar application of Collaboration. You can find the configuration file of this component at: *ext/social-integration/src/main/resources/conf/portal/configuration.xml*.

See the following example:

```
<external-component-plugins>
  <target-component>org.exoplatform.calendar.service.CalendarService</target-component>
  <component-plugin>
    <name>CalendarEventListener</name>
    <set-method>addEventListenerPlugin</set-method>
    <type>org.exoplatform.cs.ext.impl.CalendarSpaceActivityPublisher</type>
  </component-plugin>
</external-component-plugins>
```

Details:

- **CalendarSpaceActivityPublisher** implements **EventLifeCycle**. It writes activities in the space activity stream when events or tasks are added/modified.

3.2. Public REST APIs

• **Calendar application**

Introduction to REST API of the Calendar portlet, and details of APIs (such as checkpermission, event, publicProcess) that are used to build all functions of the Calendar application.

• **Mail application**

Introduction to REST API of the Mail portlet, and details of APIs (such as checkMail, synchFolders, getCheckMailJobInfo) that are used to build all functions of the Mail application.

• **Chat application**

Introduction to services (RESTXMPPService and FileExchangeService), and details of APIs (such as getRoomConfigForm, declineToRoom, getRoomConfigForm) that are used for building all functions of the Chat application.

Collaboration implements and provides many public REST APIs to help built-in applications, such as Calendar, Chat and Mail to communicate and transfer data with the server. By using these public REST APIs, extended or 3rd party applications can make use of this to develop cool web applications faster without much implementation.

See also

- [Extension points](#)
- [JCR Structure](#)

3.2.1. Calendar application

The Calendar application of Collaboration uses CalendarWebservice to provide all APIs for working with calendars, such as creating personal/group calendars, sharing calendars, managing events/tasks.

The REST API of Calendar portlet is exposed by *org.exoplatform.services.cs.calendar.CalendarWebservice* class.

Service name	Service URL	Location	Description
CalendarWebservice		Maven org.exoplatform.cs	groupId: Call extended services of the Calendar application.

Service name	Service URL	Location	Description
	\$portalname/ \$restcontextname/cs/ calendar	ArtifactId: exo.cs.web.webservice	

Details:

- \$portalname: The name of the portal
- \$restcontextname: The context name of rest webapplication which is deployed to the "\$portalname" portal.

APIs usage: Use the following APIs to build all functions of the Calendar application.

Name	Service URL endpoint	Parameters	Expected Values	Description
checkpermission	/cs/calendar/ checkPermission/ {username}/ {calendarId}/type}	username	user id	Check the permission of a user to a calendar, aiming at defining if the user has the edit permission to the calendar or not.
		calendarId	calendar id	
		type	INVALID_TYPE = -1 / PRIVATE_TYPE = 0 / SHARED_TYPE = 1 / PUBLIC_TYPE = 2	
event	/cs/calendar/event/ {username}/ {eventFeedName}	username	user id	Return a feed RSS that lists links to access a specific event.
		eventFeedName	string	
feed	/cs/calendar/feed/ {username}/ {feedname}/{filename}	username	username	Show the content of a feed that is a list of events in the "filename" file.
		feedname	string	
publicProcess	/cs/calendar/ subscribe/ {username}/ {calendarId}/{type}	filename	string	Process the public calendar when having a remote access request.
		username	user id	
		calendarId	calendar id	
privateProcess	cs/calendar/private/ {username}/ {calendarId}/{type}	type	INVALID_TYPE = -1 / PRIVATE_TYPE = 0 / SHARED_TYPE = 1 / PUBLIC_TYPE = 2	Process the public calendar when having a remote access request. User must enter username and password to access.
		username	user id	
		calendarID	calendar id	
		type	INVALID_TYPE = -1 / PRIVATE_TYPE = 0 / SHARED_TYPE = 1 / PUBLIC_TYPE = 2	

Name	Service endpoint	URL	Parameters	Expected Values	Description
getEvents	/cs/calendar/events/ personal/{type}/ {calids}/{from}/{to}/ {limit}		type	Event/Task	Get personal events/ tasks of a particular calendar by time range and limit the number of returned events/tasks by the 'limit' parameter.
			calids	Personal calendar id	
			from	long	
			to	long	
			limit	integer	
upcomingEvent	/cs/calendar/ getissues/ {currentdatetime}/ {type}/{limit}		currentdatetime	valid time format	The list of upcoming events in a specific calendar.
			type	INVALID_TYPE = -1 / PRIVATE_TYPE = 0 / SHARED_TYPE = 1 / PUBLIC_TYPE = 2	
			limit		
updateStatus	/cs/calendar/ updatestatus/ {taskid}?statusid={status_id}		taskid status_id	integer	Update the status of a task.
				task id	
				integer with following values:	
				1 - Need Action	
				2 - In Progress	
getCalendars	/cs/calendar/ getcalendars		no param	3 - Completed	Get a list of calendars.
				4 - Canceled	

3.2.2. Mail application

The Mail application of Collaboration uses MailWebservice to provide all APIs for working with mail, such as sending/checking/storing mail to JCR.

REST API of the Mail portlet is exposed by *org.exoplatform.services.cs.mail.MailWebservice* class.



Warning

The Mail portlet and its services are deprecated. It remains fully supported for eXo customers, however it will not receive any enhancement and will be removed from the product scope in the future.

Service name	Service URL	Location	Description
MailWebservice	<code>\$portalname/ \$restcontextname/ private/cs/mail</code>	Maven groupId: org.exoplatform.cs artifactId: exo.cs.web.webservice	This service is used to call extended services of the Mail application.

APIs Usage: Use the following APIs to build all functions of the Mail application.

Name	Service endpoint	URL	Parameters	Expected Values	Description
checkMail	/checkmail/ {username}/ {accountId}/{folderId}/		username accountId folderId	user id account id folder id	Check mails when having a request.
synchFolders	/synchfolders/ {username}/ {accountId}/		username accountId	user id account id	Synchronize the mail folders in the clients and those in the mail server.
stopCheckMail	/stopcheckmail/ {username}/ {accountId}/		username accountId	user id account id	Stop checking the mail.
getCheckMailJobInfo	/checkmailjobinfo/ {username}/ {accountId}/		username accountId	user id account id	The method to get information of the mail-checking job.
searchemail	/searchemail/ {keywords}		keywords	string	Search information from emails.

3.2.3. Chat application

The Chat application uses some APIs to help users create a room, join a room, invite other users to room, or send files, and more.

The Chat application of Collaboration uses two following services to do these tasks.

- [RESTMPPService \[48\]](#)
- [FileExchangeService \[54\]](#)



Warning

The Chat portlet and its services are deprecated. It remains fully supported for eXo customers, however it will not receive any enhancement and will be removed from the product scope in the future.

RESTMPPService

REST API *RESTMPPService* of the Chat portlet is exposed by *org.exoplatform.services.xmpp.rest.RESTMPPService* class.

Service name	Service URL	Location	Description
RESTMPPService			

Service name	Service URL	Location	Description
	\$portalname/ \$restcontextname/ xmpp	Maven org.exoplatform.cs	groupid: Implement all actions sent to the Chat server;
		exo.cs.eXoApplication.chat.service	

APIs Usage: Use the following APIs to build all functions of the Chat application.

Name	Service URL endpoint	Parameters	Expected Values	Description
loadJsResourceBundle	loadJsResourceBundle/ {locale}/	locale	locale id	Read the language files in the Chat server.
createRoom	/muc/createroom/ {username}/	username	user id	Create a chat room or a group chat.
		room	room name	
configRoom	/muc/configroom/ {username}/	nickname username	display name user id	Establish the configuration of a chat room.
getRoomConfigForm	/muc/getroomconfig/ {username}/	room username	room name user id	Get the configuration of a chat room created.
getRoomInfo	/muc/getroominfo/ {username}/	room username	string user id	Get the information of a chat room created.
getJoinedRooms	/muc/joinedrooms/ {username}/	username	user id	List chat rooms that a user has been joined.
getRooms	/muc/rooms/ {username}/	username	user id	Get a list of group chat or chat rooms created.
declineToRoom	/muc/decline/ {username}/{inviter}/	username inviter	user id user id	Refuse the invitation to join the chat room.
		room	room name	
destroyRoom	/muc/destroy/ {username}	reason username	string user id	Delete a chat room created.
		room	room name	
		reason	string	
		altroom	room id	

Name	Service endpoint	URL	Parameters	Expected Values	Description
inviteToRoom	/muc/invite/{username}/{invitee}/		username	user id	Invite other users to join a chat room.
			invitee	user id	
			room	room name	
			reason	string	
joinRoom	/muc/join/{username}/		username	user id	Join a chat room.
			room	room name	
			nickname	display name	
leftRoom	/muc/leaveroom/{username}/		password	room password	Leave a chat room.
			username	user id	
			room	room name	
changeNickname	/muc/changenickname/{username}/{nickname}/		username	user id	Change the nickname of users.
			nickname	display name	
changeAvailabilityStatusInRoom	/muc/changesubject/{username}/{mode}/		username	user id	Change the status of a user in the chat room.
			mood	presence type	
			room	room name	
			status	presence type	
changeSubject	muc/changesubject/{username}/		username	user id	Change the subject of a chat room.
			room	room name	
manageRoleRoom	/muc/managerole/{username}/		subject	string	Change the role of each user in a chat room.
			username	user id	
			room	room name	
			nickname	display name	
			role	Participant moderator	
			command		

Name	Service endpoint	URL	Parameters	Expected Values	Description
				grant/revoke	
manageAffiliationRoom	/muc/ manageaffiliation/ {username}/		username	user id	Change the ownership of a chat room.
			room	room name	
			nickname	display name	
			affiliation	String affiliation	
			command	grant / revoke	
kickUserFromRoom	/muc/kick/{username}/		username	user id	Remove a user from the chat room.
			nickname	display name	
			room	room name	
			reason	string	
banUserFromRoom	/muc/ban/{username}/		username	user id	Ban a user in the chat room.
			room	room name	
			name	user id	
			reason	string	
addBoddyToRoster	/roster/add/ {username}/{adduser}		username	user id	Add a user into the contact list.
			adduser	use id	
			nickname	display name	
			group	group id	
updateBoddy	/roster/update/ {username}/ {upduser}/		username	user id	Update new users into the contact list.
			upduser	user id	
			nickname	display name	
			group	group id	
createGroup	/roster/group/ {username}/{group}/		username	user id	Create a chat room.
			group	group id	

Name	Service endpoint	URL	Parameters	Expected Values	Description
askForSubscription			username	user id	Change the presence type of a user into Subscription.
			askuser	user id	
			nickname	display name	
cleanBuddylist	/rosterclean/ {username}/		username	user id	Remove a user from the contact list.
getAllHistory	/history/getmessages/ {username}to/ {isGroupChat}/		username	user id	Get all the chat history of two users.
			isGroupChat	true / false	
getHistoryBetweenDate	/history/getmessages/ {username}to/ {isGroupChat}/{from}/ {to}/		username	user id	Get the chat history of two users in a specific period.
			isgroupchat	true / false	
			from	valid date format	
			to	valid date format	
getHistoryFromDateToNow	/history/getmessages/ {username}to/ {isGroupChat}/{from}/		username	user id	Get the chat history of two users from a specific date to the current time.
			isGroupChat	true / false	
			from	valid date format	
			username	user id	
getAllHistoryFile	/history/file/ getmessages/ {username}to/ {isGroupChat}/ {clientTimezoneOffset}/		username	user id	Download all the chat history file of two users.
			isGroupChat	true / false	
			clientTimezoneOffset	Long	
getHistoryFromDateToNowFile	/history/file/ getmessages/ {username}to/ {isGroupChat}/{from}/ {clientTimezoneOffset}/		username	user id	Download the chat history file of two users from a specific date to the current time
			isGroupChat	true / false	
			from	valid date format	

Name	Service endpoint	URL	Parameters	Expected Values	Description
getHistoryBetweenDates		/file/ getmessages/ {username}/ {isGroupChat}/{from}/ {to}/ {clientTimezoneOffset}/	clientTimezoneOffset	Long	Download the chat history file of two users in the specific date.
			usernamefrom	user id	
			username	user id	
			isGroupChat	true / false	
getUserInfo			from	valid date format	
			to	valid date format	
			clientTimezoneOffset	Long	
			usernamefrom	user id	
login2			username	user id	Allow a user to log in the chat server.
			needinfo	string	
			forcache		
			presencestatus	presencestatus	
logout			username	user id	Allow a user to log out the chat server.
			presencestatus	presencestatus	
			username	user id	
			messageid	message id	
messageReceive			username	user id	Receive a message from other users.
			messageid	message id	
			username	user id	
			removeboddy	user id	
removeBuddy			username	user id	Delete a contact from the contact list.
			removeboddy	user id	
			username	user id	
			transport	transport servive (e.g: Yahoo, XMPP)	
removeTransport			username	user id	Reset the presence type at the service that is being used.
			transport	transport servive (e.g: Yahoo, XMPP)	
			username	user id	
			search	string	
searchUsers			username	user id	Search users in the chat server.
			search	string	
			byUsername	true / false	
			byName	true /false	
			byEmail	true / false	

Name	Service endpoint	URL	Parameters	Expected Values	Description
			searchService	string	
sendMessage	/sendmessage/ {username}/		username	user id	Send an message to other users.
			messageBean	object	
sendMUCMessage	/muc/sendmessage/ {username}/		username	user id	Send a message to multile users or a group.
			messageBean	object	
setUserStatus	/sendstatus/ {username}/{status}/		username	user id	Change the status of a user.
			status	available/ unavailabe / do not disturb / away / extend away	
subscribeUser	/subscribeuser/ {username}/ {subsuser}/		username	user id	Change presence type into Subscribed type.
			subsuser	user id	
unsubscribeUser	/unsubscribeuser/ {username}/ {unsubsuser}/		username	user id	Change presence type into the Unsubscribed type.
			unsubsuser	user id	
acceptFile	/fileexchange/accept/ {username}/{uuid}/		username	user id	Accept getting a file sent from another user.
			uuid	string	
rejectFile	/fileexchange/reject/ {username}/{uuid}/		username	user id	Refuse getting a file sent from another user.
			uuid	string	
getPreviousStatus	/getprevstatus/ {username}/		username	user id	Get the tatus of a user in the last log-in.

FileExchangeService

REST API *FileExchangeService* for uploading files is defined in *org.exoplatform.services.xmpp.rest.FileExchangeService* class.

Service name	Service URL	Location	Description
FileExchangeService	\$portalname/ \$restcontextname/ fileexchange	Maven org.exoplatform.cs InterfactId: exo.cs.eXoApplication.chat.service	Upload a file to the server and inform the user that the file can be downloaded to the local computer.

APIs Usage: Use the following APIs to upload and send files to other users.

Name	Service endpoint	URL	Parameters	Expected Values	Description
upload	\$portalname/ \$restcontextname/ fileexchange		description	string	Upload a file to the server.

Name	Service endpoint	URL	Parameters	Expected Values	Description
			username	user id	
			requestor	user id	
			isroom	true / false	

3.3. JCR Structure

- **Calendar JCR Structure**

Introduction to the Calendar JCR structure, details of child nodes, node types and properties of the following nodes: calendars, eventCategories, categories, eXoCalendarFeed, YY%yyyy% and calendarSetting.

- **Chat JCR Structure**

Introduction to the Chat JCR structure, and properties of its node types (lr:conversation, lr:historicalmessage, lr:participantchat, lr:interlocutor, lr:defaultpresencestatus, and lr:presencestatus).

- **Address Book JCR Structure**

Introduction to the Address Book JCR structure, and details of its nodes (Contacts, ContactGroup, tags and shared).

- **Mail JCR Structure**

Introduction to the Mail JCR structure, and properties of its node types (exo:account, exo:folder, exo:message, exo:mailAttachment, exo:mailtag, exo:filter, exo:mailSetting).

- **RSS JCR Structure**

Introduction to the RSS JCR structure, and properties of its node type (exo:content).

Collaboration is a JCR-based product, so data of Collaboration are managed by the eXo-JCR service with each specific structure. The chapter aims at outlining the JCR structure of each application in Collaboration through diagrams and then describing properties of main node types.

Each diagram shows nodes and their primary node types. Every node/child node must have only one primary node type represented in the round bracket () under the node/childnode, but may also have many mixin node types. Because mixin nodes cannot define the node structure like the primary nodes, they are not shown in the diagrams and their properties hereafter are not described.



Note

To learn more about the Collaboration JCR Structure, you should have the certain knowledge of [JCR](#).

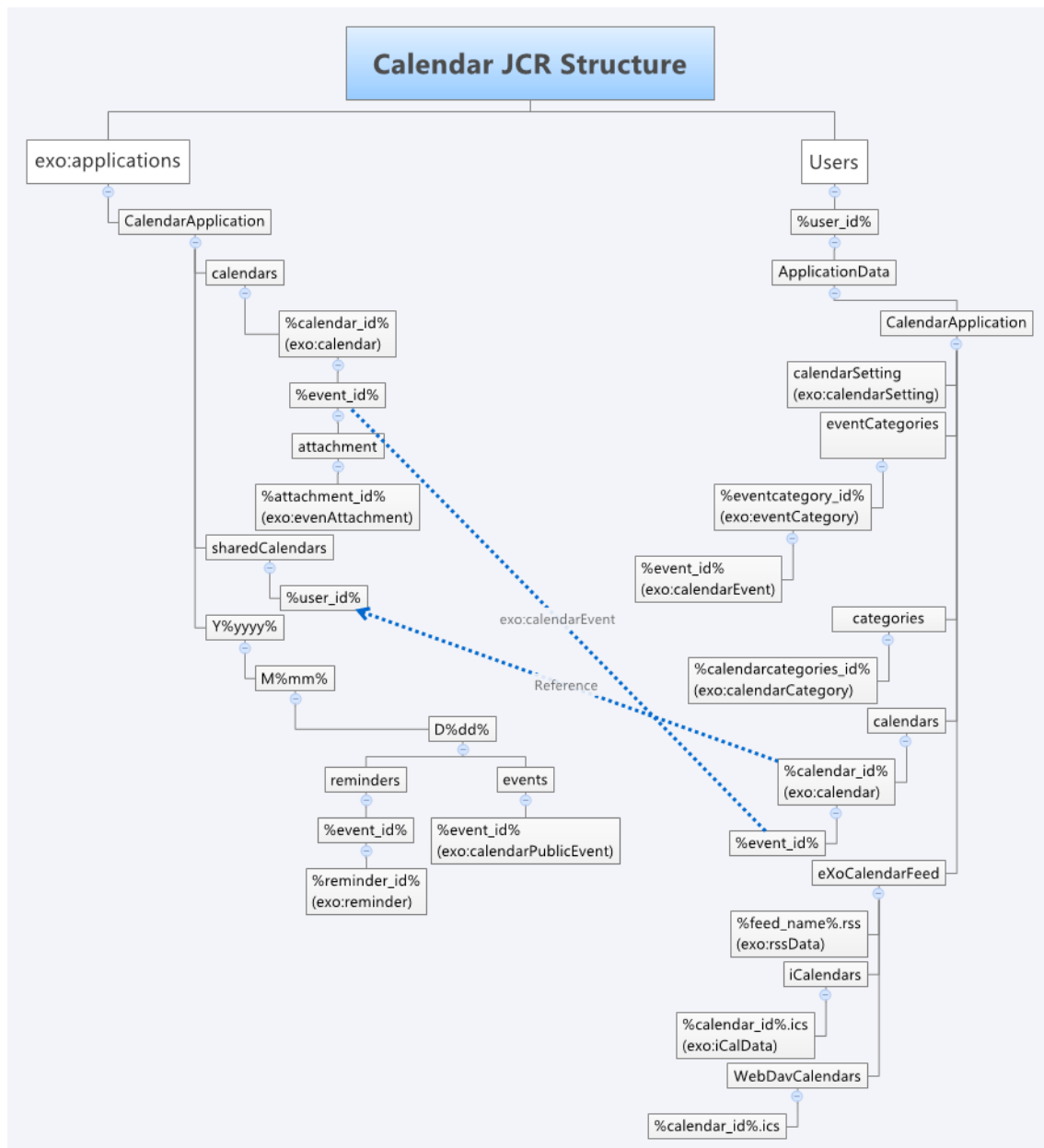
See also

- [Extension points](#)
- [Public REST APIs](#)

3.3.1. Calendar JCR Structure

The Calendar data are saved in eXo-JCR under the CalendarApplication data directory. The Calendar JCR Structure is divided into two main branches: one for public (exo:application) and the other for users (Users).

The whole JCR structure of Calendar can be visualized in the diagram below:



3.3.1.1. calendars

The **Calendars** node of the `nt:unstructured` type contains the child nodes of the **exo:calendar** type. When a calendar is created by users or the default ones in the system, it is stored under the **calendars** node: `CalendarApplication/calendars/%calendar_id%`. Its node type is `exo:calendar` that has the following properties:

Property name	Required type	Multiple	Description
exo:id	String	false	The Id of the calendar.
exo:name	String	false	The name of the calendar.
exo:description	String	false	The brief description of the calendar.
exo:viewPermissions	String	true	The list of users/groups having the view permissions.
exo:editPermissions	String	true	The list of users/groups having the edit permissions.

Property name	Required type	Multiple	Description
exo:groups	String	true	The list of user groups to which the calendar belongs.
exo:categoryId	String	false	The Id of the category containing the calendar.
exo:calendarColor	String	false	The color name of the calendar that is defined in the <i>org.exoplatform.web.ui.form.ext.UIColorPicker</i> class (such as <i>Sky blue</i> , <i>Powder blue</i>).
exo:calendarOwner	String	false	The name of the user creating the calendar.
exo:locale	String	false	Location where the calendar is set in format of the uppercase ISO 3166 3-letter country code.
exo:timeZone	String	false	The Id of the time zone that is set by the user in compliance with the Java class: <i>java.util.TimeZone</i> .
exo:publicUrl	String	false	The public ICAL link of the calendar.
exo:privateUrl	String	false	The private ICAL link of the calendar.

When a user shares his own calendar with other users, the Id of the calendar node is referred to the node under the **sharedCalendar** node: *CalendarApplication/sharedCalendars/%user_id%* following the JCR reference mechanism.

In case of users' private calendar, two mixin node types *exo:remoteCalendar* and *exo:calendarShared* can be added to the *exo:calendar* node type.

- The *exo:remoteCalendar* mixin node type has the following properties:

Property name	Required type	Multiple	Description
exo:remoteUrl	String	false	The URL of the remote calendar.
exo:remoteType	String	false	The type of the remote calendar, including ICalendar (.ics) and CalDav.
exo:username	String	false	The username used to access the remote calendar.
exo:password	String	false	The password used to access the remote calendar.
exo:syncPeriod	String	false	The period the remote calendar is synchronized. auto, 5 minutes, 10 minutes, 15 minutes, 1 hour, 1 day, 1 year

Property name	Required type	Multiple	Description
exo:lastUpdated	Date	false	The last update of the remote calendar.
exo:beforeDate	String	false	The period before the current date in which the calendar is checked out, including the values: None (the unlimited time), 1 week, 2 weeks, 1month, 2 months, 3 months, 6 months and 1 year.
exo:afterDate	String	false	The period after the current date in which the calendar is checked out, including the values: Forever (the unlimited time), 1 week, 2 weeks, 1month, 2 months, 3 months, 6 months and 1 year.

- The *exo:calendarShared* mixin node type has the following properties:

Property name	Required type	Multiple	Description
exo:sharedId	Reference	true	The user Ids who are shared the calendars.

An event can have many attachments which are stored under the **attachment** node of the *exo:eventAttachment* type: *CalendarApplication/calendars/%calendar_id%/event_id%/attachment/%attachment_id%*. The *exo:eventAttachment* node type has the following properties:

Property name	Required type	Multiple	Description
exo:fileName	String	false	The name of the attached file.

3.3.1.2. eventCategories

The **eventCategories** node contains all event categories. When an event category is created, it is stored in a node of the *exo:eventCategory* type, under the **eventCategories** node defined at the path: *CalendarApplication/eventCategories/%eventcategory_id%*.

This node type has the following properties:

Property name	Required type	Multiple	Description
exo:id	String	false	The Id of the category to which an event belongs.
exo:name	String	false	The name of the category to which an event belongs.
exo:description	String	false	The brief description of the category to which an event belongs.

Each event category node contains the calendar event node of the *exo:calendarEvent* type. This node of the *exo:calendarEvent* type is stored at the path: *CalendarApplication/eventCategories/%eventcategory_id%/event_id%*.

This node type has the following properties:

Property name	Required type	Multiple	Description
exo:id	String	false	The Id of the event.
exo:eventType	String	false	Type of the event, including Event and Task.
exo:summary	String	false	The summary of the event.
exo:location	String	false	The location where the event will take place.
exo:taskDelegator	String	false	The name of the user being delegated the task.
exo:description	String	false	The brief description of the event.
exo:eventCategoryId	String	false	The Id of the category containing the event.
exo:eventCategoryName	String	false	The name of the category containing the event.
exo:calendarId	String	false	The Id of the calendar containing the event.
exo:fromDateTime	Date	false	The start time of the event.
exo:toDateTime	Date	false	The end time of the event.
exo:priority	String	false	The preference order of the event, including 4 values: none, low, normal, high.
exo:isPrivate	Boolean	false	Define if the event is private or not.
exo:eventState	String	false	The state of the event which depends on each event type.
exo:invitation	String	true	The list of email addresses of users being invited to the event. This property is for the Event type only.
exo:participant	String	true	The list of users being invited to the event. This property is for the Event type only.
exo:participantStatus	true	String	The status of the participant, including name and status value.
exo:message	String	false	The content of the invitation email.
exo:repeat	String	false	Repetition type of the event, including: "norepeat", "daily", "weekly", "monthly", "yearly", "weekend", "workingdays".
exo:sendOption	String	false	The option to notify users before sending the invitation via email: never (not sending

Property name	Required type	Multiple	Description
			all time), always (sending without asking) and ask (asking before sending).

3.3.1.3. categories

The **categories** node of the *nt:unstructured* type contains the child nodes of the *exo:calendarCategory* type. These child nodes containing the Id of the calendars in the categories are stored under the **categories** node: *CalendarApplication/categories/%calendarcategories_id%*.

The *exo:calendarCategory* node type has the following properties:

Property name	Required type	Multiple	Description
exo:id	String	false	The Id of the category to which a calendar belongs.
exo:name	String	false	The name of the category to which a calendar belongs.
exo:description	String	false	The brief description of the category to which a calendar belongs.
exo:calendarIds	String	true	A list of calendar Ids belonging to the category.

3.3.1.4. eXoCalendarFeed

The **eXoCalendarFeed** of the *nt:unstructured* type contains **iCalendars**, **webDavCalendars** as child nodes and others of the *exo:rssData* type.

The *exo:rssData* node type has the following properties:

Property name	Required type	Multiple	Description
exo:baseUrl	String	false	The original link to the RSS source.
exo:title	String	false	The title of the feed.
exo:content	Binary	false	The content of the feed.

The **iCalendars** node of the *nt:unstructured* type contains the child nodes of *exo:iCalData* type.

The *exo:iCalData* node type has the following properties:

Property name	Required type	Multiple	Description
exo:data	Binary	false	The exported content of the calendar in the ics.format.

The **webDavCalendars** node of the *nt:unstructured* type contains the child nodes of the *exo:caldavCalendarEvent* type.

The *exo:caldavCalendarEvent* node type has the following properties:

Property name	Required type	Multiple	Description
exo:caldavHref	String	false	The URL of the remote calendar event.
exo:caldavEtag	String	false	The tag of the remote calendar event.

3.3.1.5. Y%yyyy%

The **Y%yyyy%** of the *nt:unstructured* type has the name beginning with the Y character followed by the year name having 4 numbers. It contains all the child nodes of **M%mm%**.

The **M%mm%** of the *nt:unstructured* type has the name beginning with the M character followed by the month name having 2 numbers. It contains all the child nodes of **D%dd%**.

The **D%dd%** of the *nt:unstructured* type has the name beginning with the D character followed by the date having 2 numbers. This node has two child nodes: **reminder** and **events**.

The **reminder** node of the *nt:unstructured* type contains the child nodes named basing on the Id of the event. This child node also has the *nt:unstructured* type. Each node is used to classify reminders of the same event. Each reminder is stored under a node of the *exo:reminder* type: *CalendarApplication/Y%yyyy%/M%mm%/D%dd%/reminders/%event_id%/%reminder_id%*.

The *exo:reminder* node type has the following properties:

Property name	Required type	Multiple	Description
exo:id	String	false	The Id of the reminder.
exo:eventId	String	false	The event Id of the reminder.
exo:creator	String	false	Define who creates the reminder.
exo:alarmBefore	Long	false	The amount of time that the reminder message is sent before the event starts.
exo:email	String	false	The list of emails to which the reminder message is sent.
exo:timeInterval	Long	false	Interval for resending the reminder message in minutes.
exo:reminderType	String	false	The types of reminders, including email and pop-up.
exo:fromDateTime	Date	false	The start time to send the reminder.
exo:remindDateTime	Date	false	The time to send the reminder.
exo:isRepeat	Boolean	false	Check if the reminder is repeated or not.
exo:isOver	Boolean	false	Check if the reminder is expired or not.
exo:summary	String	false	The summary of the reminder.
exo:description	String	false	The brief description of the reminder.

The **events** node of the *nt:unstructured* type contains the child node of the *exo:calendarPublicEvent* type defined at the path: *CalendarApplication/Y%yyyy%/M%mm%/D%dd%/events/%event_id%*.

Property name	Required type	Multiple	Description
exo:id	String	false	The Id of the public event.
exo:eventType	String	false	Event type, including Task and Event.

Property name	Required type	Multiple	Description
exo:calendarId	String	false	The calendar Id of the public event.
exo:rootEventId	String	false	The Id of each corresponding node: exo:calendarEvent.
exo:fromDateTime	Date	false	The start time of the public event.
exo:toDateTime	Date	false	The end time of the public event.
exo:participant	String	true	The list of users being invited to the public event.
exo:eventState	String	false	The state of the public event, including: busy, available, outside.

The **events** node can add the **exo:repeatCalendarEvent** mixin node that has the following properties:

Property name	Required type	Multiple	Description
exo:repeatCount	Long	false	The number of times that the event is repeated.
exo:repeatUntil	Date	false	The given time until when the event is repeated.
exo:repeatInterval	Long	false	The interval when the event is repeated. It can be day, week, month or year corresponding to the repetition type chosen of day, week, month or year.
exo:repeatByDay	String	true	The given days in a week on which the event is repeated.
exo:repeatByMonthDay	Long	true	The given day/date in a month on which the event is repeated.
exo:recurrenceId	String	false	The Id of each event in the event series.
exo:excludeId	String	true	The Id of the events that are removed from the event series.
exo:isException	Boolean	false	Show whether the event is the exception in the event series or not. This case occurs when the event is removed from the repeated event series.
exo:originalReference	Reference	false	The UUID of the event that is repeated first.

Property name	Required type	Multiple	Description
exo:repeatFinishDate	Date	false	The end date on which the event is repeated.

3.3.1.6. calendarSetting

The **calendarSetting** node of the *exo:calendarSetting* type is stored in *CalendarApplication/calendarsetting*. The *exo:calendarSetting* node type has the following properties:

Property name	Required type	Multiple	Description
exo:viewType	String	false	View type of the calendar. For more details, refer to the <i>org.exoplatform.calendar.service.CalendarSetting</i> class.
exo:timeInterval	Long	false	The interval for each action displayed each UI, for example, dragging and dropping one event in the Calendar application.
exo:weekStartOn	String	false	Define the start date of one week, complying with the <i>org.exoplatform.calendar.service.CalendarSetting</i> class.
exo:dateFormat	String	false	Define the date format, including dd/MM/yyyy, dd-MM-yyyy, MM/dd/yyyy, and MM-dd-yyyy.
exo:timeFormat	String	false	Define the time format, including "hh:mm a" and "HH:mm".
exo:location	String	false	Location where the calendar is set in format of the uppercase ISO 3166 3-letter country code.
exo:timeZone	String	false	The Id of the time zone, which is set by the user in compliance with the Java class: <i>java.util.TimeZone</i> .
exo:showWorkingTime	false	Boolean	Check if the working period is displayed or not.
exo:workingTimeBegin	String	false	Time to start working. This property only takes effect when <i>exo:showWorkingTime</i> is set to true.
exo:workingTimeEnd	String	false	Time to end working. This property only

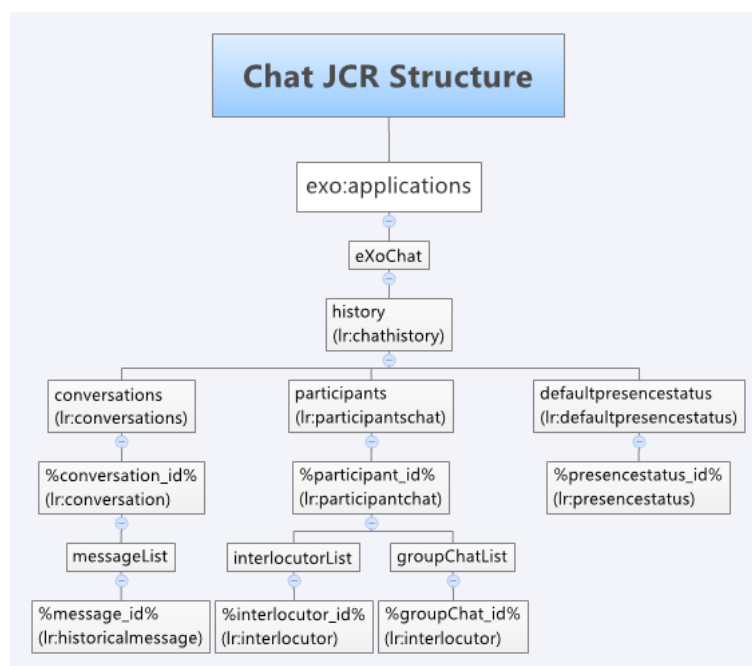
Property name	Required type	Multiple	Description
			takes effect when <code>exo:showWorkingTime</code> is set to true.
<code>exo:defaultPrivateCalendars</code>	String	true	The list of the hidden private calendars.
<code>exo:defaultPublicCalendars</code>	String	true	The list of the hidden public calendars.
<code>exo:defaultSharedCalendars</code>	String	true	The list of the hidden shared calendars.
<code>exo:sharedCalendarsColors</code>	String	true	Define the color of the shared calendar, which is in the format of calendar id:color name .
<code>exo:sendOption</code>	String	false	The option to notify users before sending an invitation via email: never (not sending all time), always (sending message without asking) and ask (asking before sending).

3.3.2. Chat JCR Structure



Warning

The Chat portlet and its services are deprecated. It remains fully supported for eXo customers, however it will not receive any enhancement and will be removed from the product scope in the future.



The node type **lr:conversation** has the following properties:

Property name	Required type	Description
Ir:conversationstartDate	Date	Start date of the conversation.
Ir:conversationlastActiveDate	Date	Last date when the conversation is updated.

The node type **Ir:historicalmessage** has the following properties:

Property name	Required type	Description
Ir:messagefrom	String	Jabber Id of the user (or chat room) sending (or containing) the message respectively.
Ir:messageto	String	Jabber Id of the user (or chat room) to whom (to which) the message is sent.
Ir:messagetype	String	List of message types. For more details, refer to the <i>org.jivesoftware.smack.packet.Message.Type</i> class.
Ir:messagebody	String	Main content of the message.
Ir:messagedateSend	Date	Date when the message was sent.
Ir:messagereceive	Boolean	Check if the message has been received or not.

The node type **Ir:participantchat** has the following properties:

Property name	Required type	Description
Ir:participantchatjid	String	Jabber Id of the user.
Ir:participantchatusername	String	Username of the portal.

The node type **Ir:interlocutor** contains information regarding to the conversation between two users or of the chat room. It has the following properties:

Property name	Required type	Description
Ir:conversationId	String	Id of the conversation which is the JCR node name of Ir:conversation.
Ir:interlocutorjid	String	Jabber Id of the chat room or user.
Ir:interlocutorname	String	Username or name of the chat room.
Ir:interlocutorisRoom	Boolean	Define if the conversation is performed between two users or is of chat room.

The node type **Ir:defaultpresencestatus** has the following properties:

Property name	Required type	Description
Ir:conversationlastActiveDate	Date	Date when the conversation is last updated.

The node type **Ir:presencestatus** contains information regarding to the current status of user. It has the following properties:

Property name	Required type	Description
Ir:userid	String	Id of the user.
Ir:status	String	Current status of the user included in the <i>org.jivesoftware.smack.packet.Presence.Type</i> class.

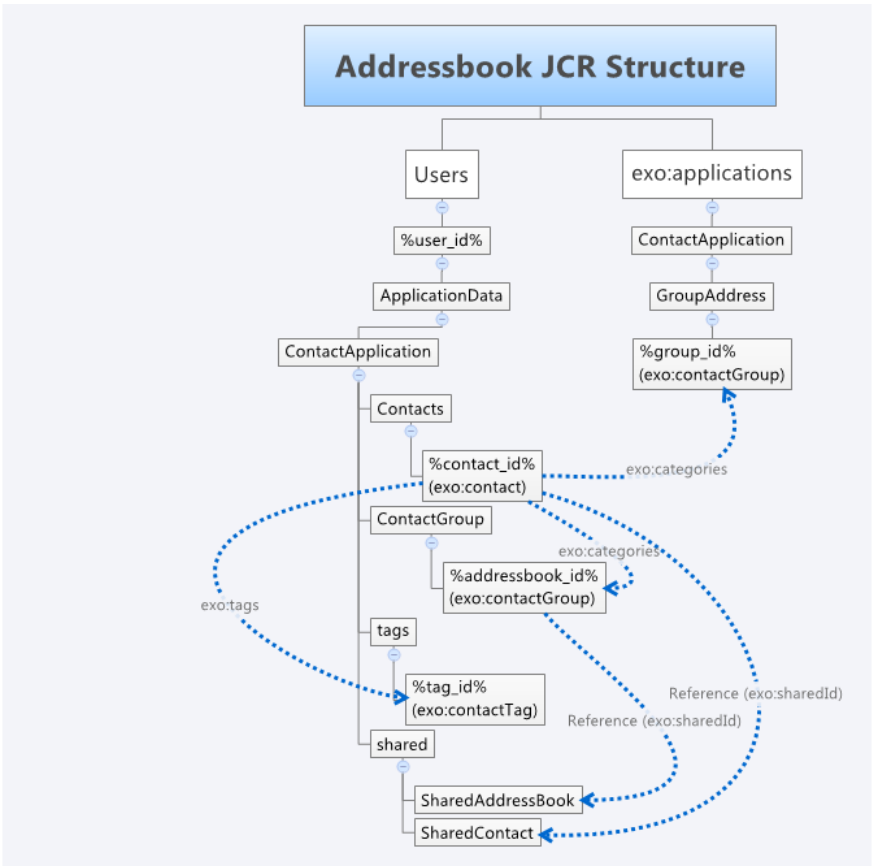
3.3.3. Address Book JCR Structure



Warning

The Address Book portlet and its services are deprecated. It remains fully supported for eXo customers, however it will not receive any enhancement and will be removed from the product scope in the future.

The Address Book portlet is a JCR-based application. The Address Book data are stored in the eXo-JCR under the ContactApplication data directory. The whole JCR structure of Address Book can be visualized in the diagram below:



Contacts

The **Contacts** node of the *nt:unstructured* type has the child nodes of the *exo:contact*. When a contact is created and added to an address book, it is stored in a node defined at the path: *ContactApplication/Contacts/%contact_id%*. When a contact is tagged, it is saved in the **tags** node with the *exo:tags* property. In case, a contact is shared to other users, it is referred to the **SharedContact** node of the *exo:sharedId* type. The *exo:contact* node type has the following properties:

Property name	Required type	Multiple	Description
exo:id	String	false	Node name of the <i>exo:contact</i> property.
exo:fullName	String	false	The full name of the contact.
exo:firstName	String	false	The first name of the contact.
exo:lastName	String	false	The last name of the contact.
exo:nickName	String	false	The nickname of the contact.
exo:gender	String	false	The gender of the contact.

Property name	Required type	Multiple	Description
exo:birthday	Date	false	The birthday of the contact.
exo:jobTitle	String	false	The job title of the contact.
exo:emailAddress	String	true	The email address of the contact.
exo:exold	String	false	The Id of the user in the Chat application of Collaboration.
exo:googleId	String	false	The Google Id of the user.
exo:msnId	String	false	The MSN Id of the user.
exo:aolId	String	false	The AOL Id of the user.
exo:yahoold	String	false	The Yahoo Id of the user.
exo:icrId	String	false	The ICR Id of the user.
exo:skypeld	String	false	The Skype Id of the user.
exo:icqId	String	false	The ICQ Id of the user.
exo:homeAddress	String	false	The home address of the contact.
exo:homeCity	String	false	The home city of the contact.
exo:homeState_province	String	false	The home state/province of the contact.
exo:homePostalCode	String	false	The home postal code of the contact.
exo:homeCountry	String	false	The home country of the contact.
exo:homePhone1	String	false	The primary home phone number of the contact.
exo:homePhone2	String	false	The secondary home phone number of the contact.
exo:homeFax	String	false	The home fax of the contact.
exo:personalSite	String	false	The personal site of the contact.
exo:workAddress	String	false	The address where the contact works.
exo:workCity	String	false	The city where the contact works.
exo:workState_province	String	false	The state/province where the contact works.
exo:workPostalCode	String	false	The postal code of the location where the contact works.
exo:workCountry	String	false	The country where the contact works.
exo:workPhone1	String	false	The primary phone number at the contact's working location.

Property name	Required type	Multiple	Description
exo:workPhone2	String	false	The secondary phone number at the contact's working location.
exo:workFax	String	false	The fax number at the contact's working location.
exo:mobilePhone	String	false	The mobile phone number of the contact.
exo:webPage	String	false	The website of the contact.
exo:note	String	false	The note about the contact.
exo:categories	String	true	The list of categories created by the user.
exo:editPermissionUsers	String	true	The list of users obtaining the edit permission.
exo:viewPermissionUsers	String	true	The list of users obtaining the view permission.
exo:editPermissionGroups	String	true	The list of groups obtaining the edit permission.
exo:viewPermissionGroups	String	true	The list of groups obtaining the view permission.
exo:tags	String	true	The list of tag Ids which the contact has marked.
exo:lastUpdated	Date	false	The time when the contact is last updated.
exo:isOwner	Boolean	false	Show if this contact is the contact of the user in the system or not.
exo:ownerId	String	false	If the contact is a user in the system, the owner Id will be the username of this user.

This node type may add the *exo:contactShared* mixin that has the following properties:

Property name	Required type	Multiple	Description
exo:sharedUserId	String	false	The name of the user sharing the contact.
exo:sharedId	Reference	true	The list of the references to shared users/groups.s

ContactGroup

The **ContactGroup** node of the *nt:unstructured* type contains all the child nodes of the *exo:contactGroup* type. These child nodes store address books and are stored in *ContactApplication/ContactGroup/%addressbook_id*. This node is also referred to the *exo:contact* node type with the *exo:categories* property. When an address book is shared, it is referred to the **SharedAddressBook** node with the *exo:sharedId* property.

The information of each address book is contained in a node of the *exo:contactGroup* type that has the following properties:

Property name	Required type	Multiple	Description
exo:id	String	false	The Id of the address book.

Property name	Required type	Multiple	Description
exo:name	String	false	The name of the address book.
exo:description	String	false	The brief description of the address book.
exo:editPermissionUsers	String	true	The list of users having the permission to edit the address book.
exo:viewPermissionUsers	String	true	The list of users having the permission to view the address book.
exo:editPermissionGroups	String	true	The list of groups having the permission to edit the address book.
exo:viewPermissionGroups	String	true	The list of groups having the permission to view the address book.

tags

Tags are used to categorize the contacts in groups, so users can easily find the contacts. The **tags** node of the *nt:unstructured* type contains the child nodes of the *exo:contactTag* type. When a new tag is created, it is stored in a node defined at the path: *ApplicationData/ContactApplications/tags/%tags_id%*. The information of each tag is contained in a node of the *exo:contactTag* type that has the following properties:

Property name	Required type	Multiple	Description
exo:id	String	false	The Id of the tag.
exo:name	String	false	The name of the tag.
exo:description	String	false	The brief description of the tag.
exo:color	String	false	The color of the tag.

Shared

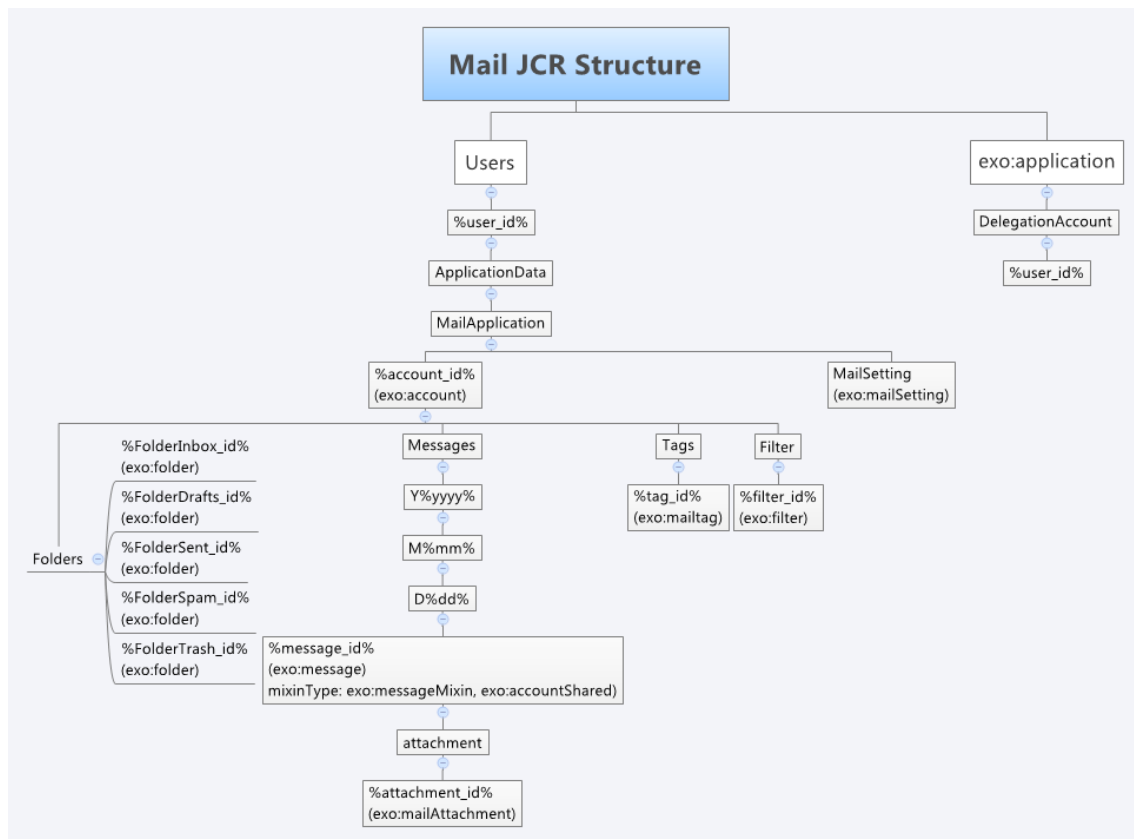
When a contact or a address book is shared to other users, it is referred to the **SharedContact** or **SharedAddressBook** node. Both of these child nodes have the *nt:unstructured* type.

3.3.4. Mail JCR Structure



Warning

The Mail portlet and its services are deprecated. It remains fully supported for eXo customers, however it will not receive any enhancement and will be removed from the product scope in the future.



The node type **exo:account** has the following properties:

Property name	Required type	Description
exo:id	String	Id of the account.
exo:label	String	Name of the account.
exo:userDisplayName	String	Screen name of the user.
exo:emailAddress	String	Email address of the account.
exo:emailReplyAddress	String	Email address of the account receiving replies.
exo:signature	String	Signature of the account.
exo:description	String	Brief description of the account.
exo:checkMailAuto	Boolean	Define if the mail is automatically checked after a given period or not.
exo:emptyTrash	Boolean	Define if the trash needs to be cleaned up when exiting from the Mail application or not.
exo:serverProperties	String	Information of the POP/IMAP server configuration.
exo:smtpServerProperties	String	Information of the SMTP server configuration.
exo:lastCheckedTime	Date	Time when the account was last checked.
exo:checkAll	Boolean	Define if all folders of the mail are checked or not.

Property name	Required type	Description
exo:checkFromDate	Date	Get mails as from the given date only if the value of <code>exo:serverProperties</code> is set for configuring the IMAP server.
exo:isSavePassword	Boolean	Define if the password is saved or not.
exo:secureAuthsIncoming	String	Type of the incoming connection for security. Its values include <code>starttls</code> , <code>ssl</code> , <code>tls</code> .
exo:secureAuthsOutgoing	String	Type of the outgoing connection for security. Its values include <code>starttls</code> , <code>ssl</code> , <code>tls</code> .
exo:authMechsIncoming	String	Authentication mechanism of the incoming connections. Its values consist of <code>ntlm</code> , <code>plain</code> , <code>login</code> , <code>digest-md5</code> , <code>kerberos/gssapi</code> , <code>cram-md5</code> .
exo:authMechsOutgoing	String	Authentication mechanism of the outgoing connections. Its values consist of <code>ntlm</code> , <code>plain</code> , <code>login</code> , <code>digest-md5</code> , <code>kerberos/gssapi</code> , <code>cram-md5</code> .
exo:permissions	String	Permissions of delegators.

The node type **exo:folder** has the following properties:

Property name	Required type	Description
exo:id	String	Id of the folder.
exo:name	String	Name of the folder.
exo:label	String	Absolute path referring to the folder on the Mail server.
exo:unreadMessages	Long	Number of unread messages in the folder.
exo:totalMessages	Long	Total number of messages in the folder.
exo:personal	Boolean	Define if the folder is created by one user or the Mail system.
exo:folderType	Long	Type of folder, which is defined in the <code>javax.mail.Folder</code> class.
exo:lastStartCheckingTime	Date	Start time of the last check in the folder.
exo:lastCheckedTime	Date	End time of the last check in the folder.

The node type **exo:message** has the following properties:

Property name	Required type	Description
exo:id	String	Id of the message.
exo:uid	String	Id of the message on the IMAP server.
exo:inReplyToHeader	String	Id of the first message in the matching thread.

Property name	Required type	Description
exo:path	String	Absolute path of the <code>exo:message</code> type.
exo:account	String	Id of the account.
exo:from	String	Value given in the From field in the email message, containing information of the sender, such as full name and email.
exo:to	String	Value given in the To field in the email message, containing information of the receiver, such as full name and email.
exo:cc	String	Value given in the CC field in the email message, containing information of the receivers, such as full name and email.
exo:replyto	String	Value given in the Reply-To field in the email message, such as emails.
exo:isUnread	Boolean	Define if the email has been read or not.
exo:subject	String	Subject of the email message that can be read from the Subject field.
exo:body	String	Main content of the email message.
exo:sendDate	Date	Date when the email message was sent.
exo:receivedDate	Date	Date when the email message was received.
exo:size	Long	Capacity of the email message in bytes.
exo:contentType	String	Content type of the email message, for example: <code>text/plain</code> and <code>text/html</code> .
exo:folders	String	List of folder Ids containing the email message.
exo:tags	String	List of tag Ids marked in the email message.
exo:star	Boolean	Define if the email message is starred or not.
exo:hasAttach	Boolean	Define if any files are attached with the email message or not.
exo:priority	Long	Preference order of the message with 3 default values: 1 = High, 3 = Normal, 5 = Low.
exo:lastUpdateTime	Date	Time when the message was last updated.

The node type **exo:mailAttachment** has the following property:

Property name	Required type	Description
exo:fileName	String	Name of the file attached in the mail.

The node type **exo:mailtag** has the following properties:

Property name	Required type	Description
exo:id	String	Tag id of the mail.
exo:name	String	Name of the tag.
exo:description	String	Brief description of the mail tag.
exo:color	String	Color of the tag which is defined in the <i>org.exoplatform.webui.form.ext.UIFormColorPicker</i> class.

The node type **exo:filter** has the following properties:

Property name	Required type	Description
exo:id	String	Filter id which is a unique and randomized value.
exo:name	String	Name of the filter which is defined by the user.
exo:from	String	Filter email messages by each field respectively:
exo:to		From
exo:subject		To
exo:body		Subject
exo:fromCondition	Long	Body
exo:toCondition		Filter emails by the condition types set in each property respectively:
exo:subjectCondition		exo:from
exo:bodyCondition		exo:to
		exo:subject
		exo:body

All these properties have two values:

0 = returned messages contains the value set in the corresponding property.

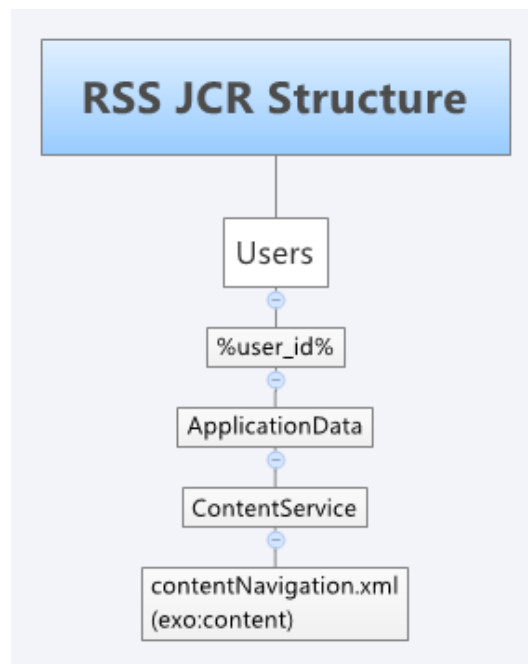
1 = do not contain the value set in the corresponding property.

Property name	Required type	Description
exo:applyTag	String	Apply the tag for the filtered email messages.
exo:applyFolder	String	Apply the folder for the filtered email messages.
exo:keepInbox	Boolean	Define if the email message is still kept in the Inbox folder or not.
exo:applyForAll	Boolean	If the value is set to "true" into the exo:applyForAll property, the filter will be executed for all email messages.

The node type **exo:mailSetting** has the following properties:

Property name	Required type	Description
exo:numberMsgPerPage	Long	Number of messages displayed in one page.
exo:formatAsOriginal	Boolean	Define if the email message got from the mail server is kept in the original format or not.
exo:replyWithAttach	Boolean	Make the original message as the attachment before replying or not.
exo:forwardWithAttach	Boolean	Make the original message as the attachment before forwarding or not.
exo:prefixMsgWith	String	Prefix for the message.
exo:periodCheckAuto	Long	Time interval to check the email messages automatically.
exo:defaultAccount	String	Id of the user account that is displayed by default when the user logged in the Mail application.
exo:useWysiwyg	String	Define the Wysiwyg editor is used or not.
exo:saveMsgInSent	Boolean	Define the sent email message is saved to the Sent folder or not.
exo:layout	Long	Type of layout which is displayed to the user.
exo:returnReceipt	Long	Action type of the user when receiving the "return receipt" to confirm the arrival of one email message, including: 0 = ask, 1 = never, 3 = always.

3.3.5. RSS JCR Structure



The node type **exo:content** has the following properties:

Property name	Required type	Description
id	String	Id of the content.
ownerType	String	Type of the owner. Its default value is user.
ownerId	String	User Id of owner.
dataType	String	Type of data.
data	String	XML string of the content navigation.
createdDate	Date	Created date of the content.
modifiedDate	Date	Modified date of the content.

